

COMMERCIAL REFRIGERATION & AIR CONDITIONING

NOVEMBER 1955



NEW PRODUCTS Preview & Review

...you'll have many of them
to sell and use in 1956...
see them in this issue and
at the

816
STEVE'S HOME MICROFILMS
312 N. FIRST ST.
ANN ARBOR, MICH.

9th EXPOSITION
AIR-CONDITIONING
AND
REFRIGERATION
INDUSTRY
ATLANTIC CITY
NOV. 28-DEC. 1
1955

MERCHANDISING, SELLING, INSTALLATION AND MAINTENANCE OF
AIR CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT

How do you make warm friends in the refrigeration business?

That's a question often asked, and we feel our answer will lay bare our business creed.

We know it takes more than just a flashing smile and abundant conversation to make real business friends.

It takes a product—a good product, one that best fills a need at the proper time.

But most of all it takes a sincere interest in fulfilling the product needs of our customers—the willingness to provide them with that "extra" effort that to them means more and better business.

That's been our conviction at Copeland and the reasons, we think, are basic. You know the team at Copeland. They've contributed heavily to the development of modern refrigeration and air conditioning from the industry's earliest days. They have kept their fingers on

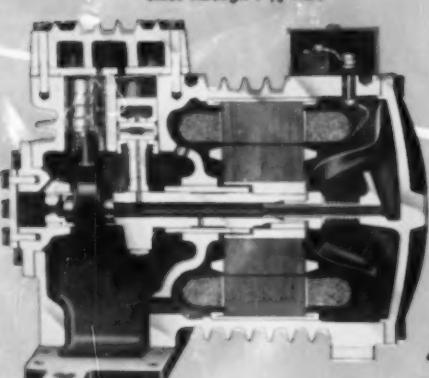
the industry pulse. For instance, there is COPELAMATIC, the accessible hermetic. It was first of its type in the field, and for years has set the pattern for others to follow.

At Copeland you'll recognize an unmistakable eagerness not only to maintain present high standards, but to work day, night and vacations to improve them . . . to make present products better and to develop soundly engineered new ones.

In addition to design, engineering and a valuable store of production "know how" at Copeland, we feel we have added the friendly smile and the genuine willingness to go beyond the call of ordinary business courtesy to help a customer. That's a policy we'll never change.

We sort of thought you'd like to know our policy of doing business. So we set down these plain facts. We rather think you'll enjoy and will profit by doing business with Copeland.

COPELAMETIC
THE *Accessible* HERMETIC
Sizes through 7 1/2 H.P.



COPELAWELD
MOTOR-COMPRESSORS
1/2 H.P. through 1 1/2 H.P.

COPELAND REFRIGERATION CORPORATION **SIDNEY, OHIO**

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SPECIFY

alco solenoid valves

A SOUND INVESTMENT, ALWAYS QUIET



THEY ASSURE DEPENDABLE REFRIGERANT
CONTROL WITH LITTLE MAINTENANCE:

- Tight seating for positive shut-off
- Moisture-proof coils to prevent burn-out
- Easy servicing without breaking connections

Add these advantages to your refrigeration
systems. ALCO—the most complete line for
all types of refrigerant service: liquid, suction or
hot gas discharge...brine, water, steam and air.

SEE YOUR ALCO WHOLESALER

Write for Condensed Catalog 20 and
Technical bulletins 173 and 182

ENGINEERED...for service...for life

Designers and Manufacturers of Thermostatic Expansion Valves; Evaporator Pressure Regulators; Solenoid Valves; Float Valves; Float Switches.



ALCO VALVE CO.

842 KINGSLAND AVE. • ST. LOUIS 3, MO.

6650

Circle No. 3 on Reader Service Card

"'Freon'* is 100% safe and efficient— we've used it ever since it came out!"

*Says Mr. Martin Buschman,
Service Manager of*

*Arundel Ice Cream Company, Inc.,
Baltimore, Maryland*



"WE'VE BEEN SOLD ON 'FREON' for 24 years—ever since Du Pont first put it on the market. We found it was the *safe*, really reliable refrigerant. 'Freon' has proved 100% efficient right along. In fact, I don't know how we ever got along without it."

Arundel makes ice cream, baked goods and candy—distributes them through twenty-five stores and fourteen sub-stores in the Baltimore area. Refrigerating equipment—large and small—is vital to the success of the business. Manufacturing processes, storage cabinets, delivery trucks and store air conditioning all employ refrigerating systems charged with "Freon".

Mr. Buschman's job as service manager of Arundel is to make sure there are no refrigeration failures. "'Freon' has never once let us down," he reports.

Like many men whose job it is to service refrigeration and air conditioning equipment of different types, Mr. Buschman has learned that he can rely on the purity, dryness and safety

of "Freon" refrigerants at all times.

Always be sure to specify "Freon", made by Du Pont—the name you can depend on. All leading wholesalers stock "Freon" refrigerants. For further information, write to E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.

KINETIC

FREON
SAFE REFRIGERANTS

*"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon refrigerants.

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
...THROUGH CHEMISTRY

**LET THIS
ICE MAKER PAY
YOUR CONVENTION
EXPENSE...**

and keep on paying you!

**SEE IT! THE NEW 2-IN-1
Crystal Tips or Chips
AUTOMATIC ICE MAKER**
at the McQuay Inc.
BOOTHS 306-307

AIR CONDITIONING
and REFRIGERATION
SHOW
ATLANTIC CITY
NOV. 28-DEC. 1



*It's a real money-maker
...the ice maker for you!*

The sensational success of the new Crystal Tips or Chips Ice Maker is easy to understand when you see it in operation. You'll be impressed by its versatility, compactness and smart design—and by the simplicity of its 2-in-1 feature. Every business and institution that is a user of ice becomes a prospect for the complete ice service this economical unit offers. See us at the show for full information, or write.

AMERICAN AUTOMATIC ICE MACHINE CO.

1797 Fourth Street, N. W., Faribault, Minnesota, A subsidiary of McQuay, Inc., Manufacturers of Heat Transfer Equipment Since 1923
Circle No. 5 on Reader Service Card
& AIR CONDITIONING • NOVEMBER, 1955

STEP INTO THIS PICTURE



Yes, we'll be looking for **YOU** in the Brunner Booths No. 426-7-8 at the 9th EXPOSITION . . . Air Conditioning and Refrigeration Industry . . . Atlantic City, N.J. . . . Nov. 28-Dec. 1, 1955.

Fifty years of Brunner experience and progress will come to life in the dramatic display shown here in sketch form.

Come in and get the latest information on our complete line of open-type and semi-hermetic condensing units for refrigeration and air conditioning. Learn why Brunner's "product-service package" is your most profitable, most dependable buy in 1956!

BRUNNER MANUFACTURING CO. • UTICA, NEW YORK

The Brunner Co., Gainesville, Ga.

In Canada: Brunner Corp. (Canada) Limited, Toronto, Ontario

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NOVEMBER, 1955 • COMMERCIAL REFRIGERATION



COMMERCIAL REFRIGERATION & AIR CONDITIONING

NOVEMBER 1955 • VOLUME 12 • No. 11

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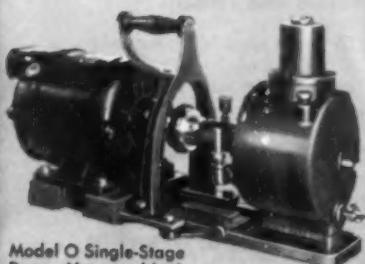
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Model A Two-Stage Pump—Vacuum, blank flange; 1/10 mm, 2.5 CFM, 1/3 HP, Weight 80 lbs.



Model O Single-Stage Pump—Vacuum, blank flange; 1 mm, 1 CFM, 1/6 HP, Weight 48 lbs.

For evacuation of refrigeration equipment on a production basis, there are larger Beach-Russ Pumps of comparable performance.

Reasons Why Servicemen Prefer BEACH-RUSS Portable Vacuum Pumps

for Dehydrating and Testing Refrigeration and Air-Conditioning Work

- 1 High Performance Characteristics
- 2 Automatic Lubrication
- 3 Quiet Operation
- 4 Minimum Attention
- 5 Valves Eliminated
- 6 Single- or Two-Stage
- 7 Long Service Life
- 8 Completely Portable

BEACH-RUSS COMPANY
50 Church Street • New York 7, N.Y. • Dept. 56

Send descriptive literature covering: Model O Single-Stage Vacuum Pumps
 Model A Two-Stage Pumps
 Beach-Russ Production Line Vacuum Pumps

NAME _____
COMPANY _____
ADDRESS _____
CITY. _____ ZONE No. _____ STATE _____

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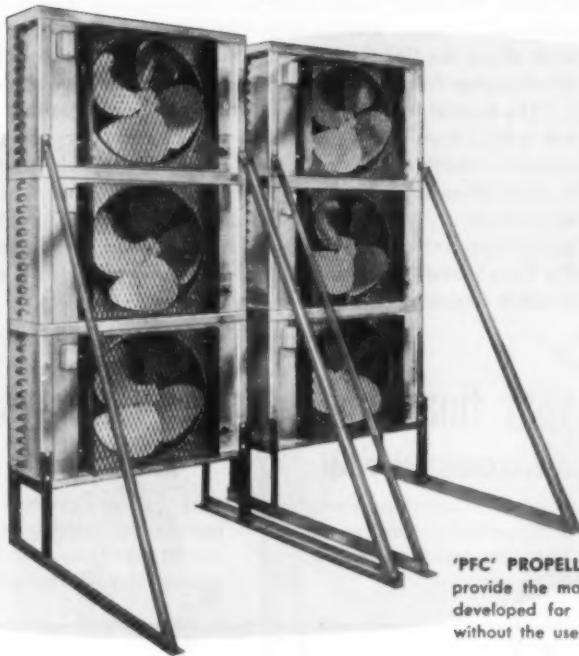
Two of the New



BOOTHES 323-4-5-6

UNITS

you'll see at the Bush Booth!



'JF' JET-FLO UNIT COOLERS feature gleaming, hospital-clean stainless steel cases . . . completely non-ferrous construction.

'PFC' PROPELLER-FAN CONDENSERS provide the most practical method yet developed for condensing refrigerants without the use of water.

You'll want to have a good look at these latest additions to the complete BUSH line. Both incorporate famed Inner-Fin® coil construction . . . patented BUSH development that's revolutionized design of air conditioning and refrigeration units.

Some of the other BUSH units you'll want to see: 'CRH' REMOTE AIR CONDITIONERS for ceiling mounting. Used in hotels, motels, etc. . . wherever wall and floor space is at a premium.

LOW TEMPERATURE UNITS: 'HG' Hot Gas Defrost

and 'ED' Electric Defrost Unit Coolers. An operating demonstrator will let you see for yourself the superior operating efficiency of these new sensations of the low temperature field.

'GD' Glycol Defrost Product Cooler in simulated operation.

INNER-FIN EVAPORATIVE CONDENSERS AND COOLING TOWERS • INNER-FIN AIR CONDITIONING COILS • MULTIZONE UNIT • UNDER-THE-WINDOW AIR CONDITIONING UNITS • UNIT COOLERS

Be sure to see the industry's most complete line . . . at the Bush booth #323, 4, 5, 6.



BUSH MANUFACTURING COMPANY • West Hartford 10, Connecticut

RIVERSIDE • CALIFORNIA

WORTHINGTON DEALERS ARE SUCCESSFUL DEALERS!



"Worthington put an end to my financing headaches"

"It takes money to make money," says Nat Jewell, Hot Springs, Arkansas' leading air conditioning and refrigeration dealer. Like many another Worthington dealer, he's enthusiastic about the financial backing that's part and parcel of the Worthington franchise. Here's what Mr. Jewell says about it:

"The kind of inventory I need at the start of the selling season would ham-string me financially — except for one good reason — Worthington doesn't tie up my capital when I need it most! When sales get ready to roll, I've got a warehouse full of products . . . and still have money in my pocket for all the advertising and sales help I need to do a good job. As far as I'm concerned, Worthington's got the broadest and most sensible financing program in the business."

Worthington can end your financing worries — 6 ways!

SEASONAL DISCOUNTS

Save up to 5% on carload lots by ordering in advance of the season. Early ordering assures sufficient stock and saves you money.

FIELD WAREHOUSING PLAN

Set up a complete inventory in your own warehouse and pay for it as you use it. Put your capital to work as you see fit.

RETAIL FINANCE PLAN

Retail dealers can discount their retail paper through Worthington (or through their local bank) . . . guaranteeing 48-hour service.

RE-PURCHASE AGREEMENT

The re-purchase agreement is designed to increase your present line of bank credit, enabling you to carry more stock — and sell more.

DEFERRED PAYMENT PLAN

Keep off-season sales high by inviting prospects to buy now . . . pay months later. Small down payment covers your installation costs.

CO-OP ADVERTISING

Reap benefits of Worthington's big-money national advertising program . . . plus generous co-op advertising plans.

Like Nat Jewell, you'll agree that Worthington backs its dealers to the hilt with the "broadest and most sensible financing program" in the industry. It's just one of many reasons why Worthington dealers are successful dealers. You'll find many more in Worthington's new monthly publication, "The Merchandiser." Write for it today. Worthington Corporation, Air Conditioning and Refrigeration Division, Section A.5.49-C, Harrison, New Jersey.

A.5.49

WORTHINGTON



THE BEST FRANCHISE . . . THE MOST COMPLETE LINE

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Uses less floor space



Helps sell



Low operating cost



and it pays for itself as
you pay for it monthly!



Selling takes time—
Time makes selling easy!



TO CLINCH more sales in less time, quote a *monthly payment*, not a *total cash price*. Many of your prospects need their working capital and usual lines of credit for current operations. No matter how much they need your equipment, they probably won't sign your order *now* unless you show them a convenient, practical way to pay. That's the **COMMERCIAL CREDIT PLAN** way. When can we tell you our story? Phone our office in your city or write: COMMERCIAL CREDIT CORP., 14 Light Street, Baltimore 2, Md.



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CREDIT
CORPORATION**

A service offered through subsidiaries of
Commercial Credit Company, Baltimore...
Capital and Surplus over \$180,000,000
...offices in principal cities of the United
States and Canada.

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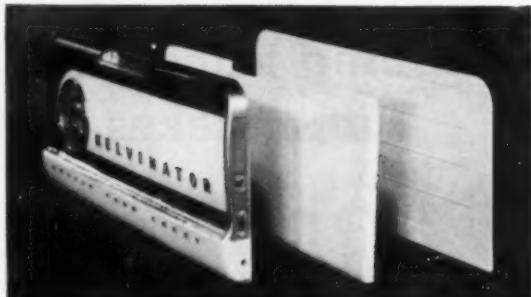
Here's how
STYROFOAM
 compares
 to other
 insulations

	low "K" factor	superior water resistance	excellent compressive strength
STYROFOAM	✓ Permanently Low. Avg. 0.25	✓ Remains Dry and Assures Constant "K" Factor	✓ Highest Strength-Weight Ratio of Any Insulation
INSULATION A		✓	✓
INSULATION B	✓		
INSULATION C	✓		✓

STYROFOAM

Kelvinator chooses STYROFOAM® for its permanent low "K" factor

Kelvinator Division of American Motors Corporation needed an insulation with long service life for the freezer compartment of their refrigerator. The permanent low "K" factor and superior water resistance of Styrofoam (Dow expanded polystyrene) made it the perfect answer. Installation is quick and economical because of Styrofoam's ease of formability and handling.



The evaporator door assembly of the 1954 Kelvinator refrigerator. Styro is used between the front and back plates which are made of Styron® 475. The Kelvinator refrigerator also uses Styrofoam in the baffle plate assembly.

THESE ARE JUST A FEW LEADING COMPANIES THAT HAVE CHOSEN STYROFOAM

The Best Foods, Inc.; The Goebel Brewing Co.; Southern Dairies, Inc.; General American Transportation Corporation; General Electric Company; Norge, Division of Borg-Warner Corporation; Kelvinator Division of American Motors Corporation; New York Central System; Swift and Company; Oscar Mayer and Company.

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light weight	ease of handling	superior resistance to vermin and decay	low installation cost
✓ Lightest Of All Rigid Insulations. Avg. Density, 1.7 lbs. per cu. ft.	✓ Pleasant—Fabricates Easily with Common Tools. Doesn't Crumble	✓ Has No Food Value	✓ Lowest Cost, Too, For Year of Service
		✓	✓
✓			✓
			✓

...the most nearly perfect low-temperature insulation ever developed

No other insulating material can match its unique combination of properties

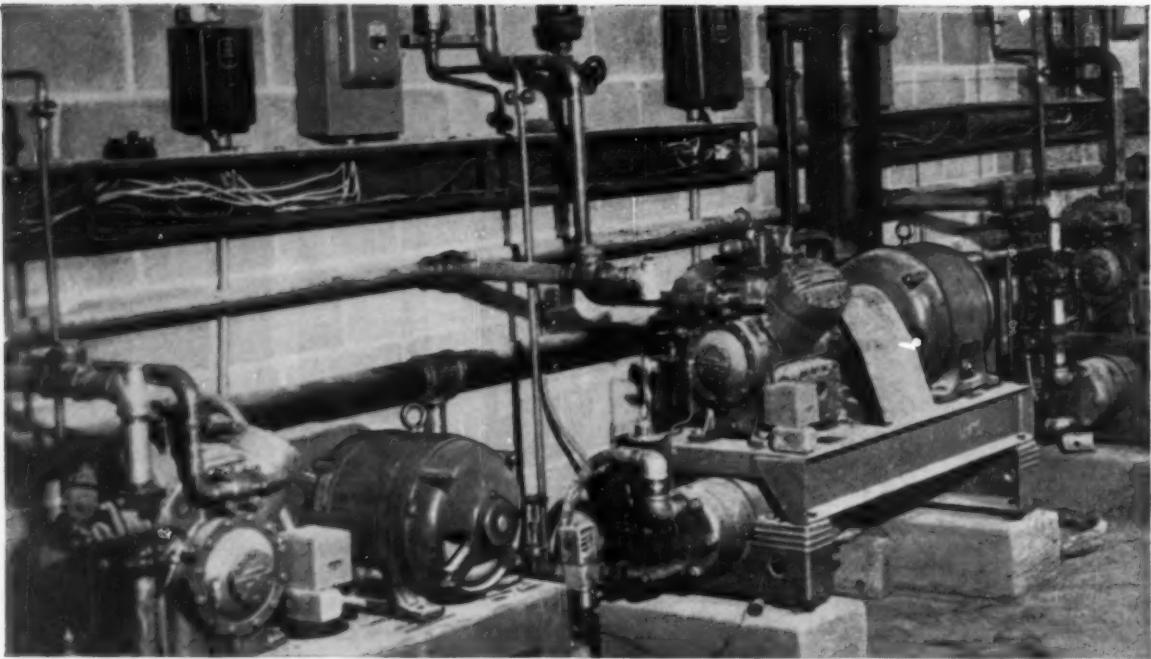
Dow will send you further information on Styrofoam, free, upon request. Please specify if you want general information on Styrofoam or detailed information on its use in low-temperature work, as a perimeter insulation, or pipe covering. Write Dow Plastics Sales Dept. PL577C1
THE DOW CHEMICAL COMPANY, Midland, Michigan, or contact your Styrofoam distributor: *The Putnam Organization, Inc.*, Chicago, Ill. • *Seward-Kauffman Corp.*, Elkhart, Ind. • *Styro Products, Inc.*, Kansas City, Kansas • *Atlantic Foam Products Co.*, Ipswich, Mass. • *Par-Foam, Inc.*, Detroit, Michigan • *Edwards Sales Corp.*, Minneapolis, Minn. • *Floral Foam Products*, Midland, Michigan • *Styro Sales Co.*, New York City • *William Summerhays Sons Corp.*, Rochester, N. Y. • *G. & W. H. Corson, Inc.*, Plymouth Meeting, Penn. • *The Emerson Co.*, Houston, Texas • *Utah Lumber Co.*, Salt Lake City, Utah • *S & S Sales Corp.*, Milwaukee, Wis. • *Durofoam Insulation, Ltd.*, Kitchener, Ontario, Canada • *Western Foam Products, Inc.*, Colma, Calif. • *Wiley-Bayley & Company*, Seattle, Washington.



you can depend on DOW PLASTICS

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Let each job select



MOTORS ARE **Performance-Rated**

Why settle for less motor than you need?

Or why pay for more motor than you can use? The most efficient and economical motor is one that is fitted to its application . . . A Performance-Rated Century Motor.

Performance-Rating means simply that from



Squirrel Cage, Polyphase Motors . . . $\frac{1}{2}$ to 400 H.P. . . . available in drip proof and dust proof frames, with sleeve or ball bearings, foot or flange mounting (cushion base available through 5 H.P.).

Repulsion Start, Induction Motors . . . single phase . . . $\frac{1}{2}$ to 7½ H.P. . . . provide high starting torque on applications requiring unusually low starting current.

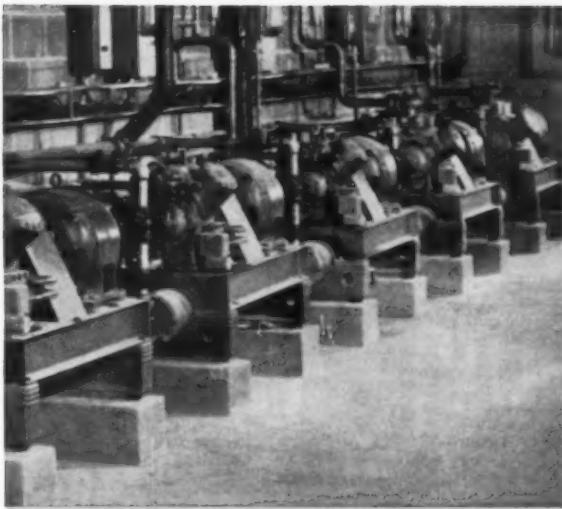
Totally Enclosed Fan Cooled Motors . . . $\frac{1}{2}$ to 100 H.P. For application in atmospheres containing abnormal quantities of dust, grit, oil or chemical fumes. May be used out of doors.

Split Phase, Unit Heater Motors . . . $\frac{1}{20}$ to $\frac{1}{2}$ H.P. . . . available with extended-through bolts or cushion base . . . split capacitor, DC and polyphase types also available.

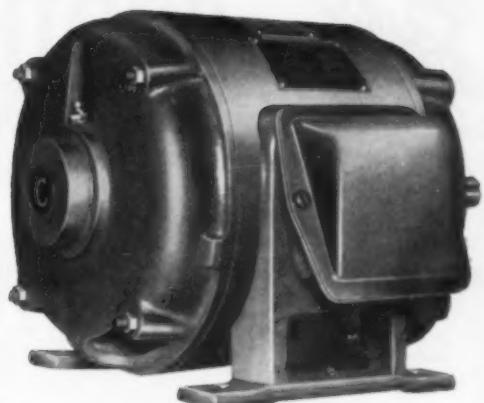
Slip Ring Motors . . . 1 to 400 H.P. . . . a favorite for applications requiring unusually low starting current. Available in drip proof, splash proof and dust proof frames.

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NOVEMBER, 1955 • COMMERCIAL REFRIGERATION



for example: This large Midwestern warehouse refrigeration installation is powered by seven Performance-Rated Century Motors, ranging in size from 3 to 10 H.P.



Century Motors for Modern Ideas... AC or DC... Single-phase or Polyphase...drip proof, dust proof or explosion proof frames.

its own motor!

TO FIT YOUR SPECIFIC NEEDS

Century's complete line of motors and generators you'll get precisely the right size, speed, frame enclosure and torque characteristics you need. Century application engineers or Authorized Century Distributors are always available to help you fit a Performance-Rated Motor to your job.

IF YOU SERVICE MOTORS, YOU CAN SELL MOTORS...

for compressors, oil burners, blowers, heaters, pumps, fans and scores of other appliances. Century will provide you with a handsome display stand, plus an easy-to-sell assortment of motors that will put you into the profitable replacement motor business. Mail this coupon for information today!

Performance-Rated[®] Motors

1/8 to 400 H. P.



Visit Century booth 508
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Atlantic City, Nov. 28 to Dec. 1, 1955

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Company _____

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CENTURY ELECTRIC COMPANY

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AIM YOUR SIGHTS AT BOOTHS 727 thru 730

9th EXPOSITION—Air Conditioning and Refrigeration Industry

IF YOU'RE OUT GUNNING . . . FOR
PROFITS!

LOAD UP

with the



YOUR KEY TO BETTER REFRIGERATION

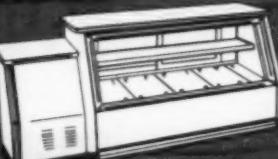
LINE . . .



FULL VISION
DISPLAY CASES



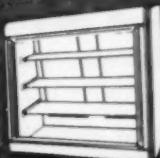
FULL VISION FORMICA TOP
COUNTER HIGH DISPLAY CASES



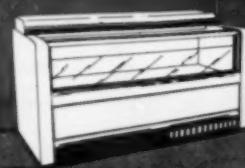
THE FAMOUS COLDIN JUNIOR

"YOU CAN SELL EVERY FOOD RETAILER"

For bigger profits now, for a secure
and prosperous future, aim your
sights at COLDIN — the display
refrigeration line that gives you
continuous customer satisfaction
. . . instead of problems!



FULL VISION
FROZEN FOOD
MERCANDISERS



AUTOMATIC DEFROST FREEZER



FROZEN FOOD MERCANDISERS

THE COLDIN LINE HAS FEATURES
TO SELL!
QUALITY • DESIGN • IMPROVEMENTS
write today for complete catalogue

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9th
exposition
air conditioning
and refrigeration
industry
nov. 28 - dec. 1
booth 405

see the greatest performance on earth
under the big top at **BOOTH 405**



PACKED LINE VALVES



LIQUID INDICATORS



DIAPHRAGM LINE VALVES

Step right into the big top—booth 405, that is—and see the best performers on earth! The nature of the stars you'll see is already legend in the industry . . . the famous Mueller Brass Co. line of refrigeration and air conditioning products, known for years as tremendous performers. We can only show you part of the act here, so make sure you stop at our tent at the 9th exposition of the Air Conditioning and Refrigeration Industry at Atlantic City, and see *all* of the best performers on earth.

MUELLER BRASS CO.

P O R T H U R O N 10, M I C H I G A N

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15



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BOOTHS 727 thru 730

9th EXPOSITION—Air Conditioning and Refrigeration Industry

IF YOU'RE OUT GUNNING . . . FOR

PROFITS!

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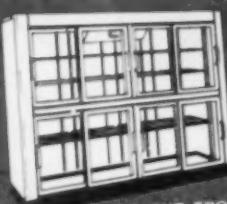
with the

Coldin
NEW YORK
YOUR KEY TO BETTER REFRIGERATION

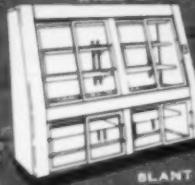
LINE . . .

**"YOU CAN SELL
EVERY
FOOD RETAILER"**

For bigger profits now, for a secure
and prosperous future, aim your
sights at COLDIN — the display
refrigeration line that gives you
continuous customer satisfaction
... instead of problems!



STRAIGHT FRONT
DAIRY & BEVERAGE
WALL CASES



BLUNT FRONT
DAIRY & BEVERAGE
WALL CASES



DOUBLE DUTY
BUTCHER CASES



DOUBLE DUTY
DELICATESSEN CASES



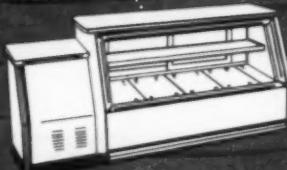
FROZEN FOOD MERCHANDISERS



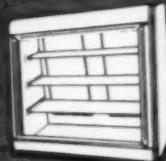
FULL VISION
DISPLAY CASES



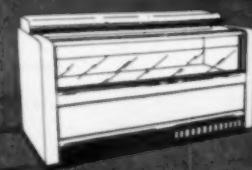
FULL VISION FORMICA TOP
COUNTER HIGH DISPLAY CASES



THE FAMOUS COLDIN JUNIOR



FULL VISION
FROZEN FOOD
MERCANDISERS



AUTOMATIC DEFROST FREEZER



FROZEN FOOD MERCANDISERS

THE COLDIN LINE HAS FEATURES
TO SELL!
QUALITY • DESIGN • IMPROVEMENTS
write today for complete catalogue

COLDIN CABINET CO., INC.

2800 WEBSTER AVENUE

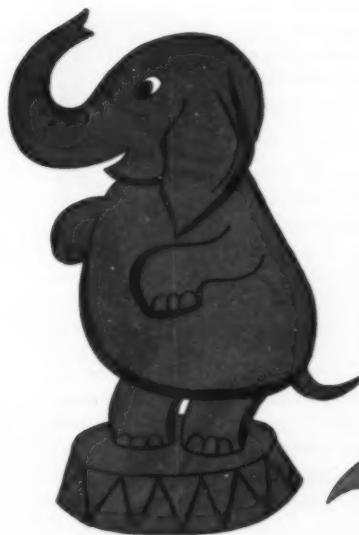
NEW YORK 58, N. Y.

Phone: CYpress 5-3311

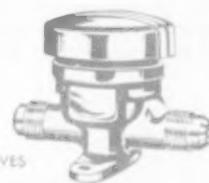


9th
exposition
air conditioning
and refrigeration
industry
nov. 28 - dec. 1
booth 405

see the greatest performance on earth
under the big top at **BOOTH 405**



PACKED LINE VALVES



DIAPHRAGM LINE VALVES



LIQUID INDICATORS

MUELLER BRASS CO.

P O R T H U R O N 10, M I C H I G A N

166

Circle No. 14 on Reader Service Card
& AIR CONDITIONING • NOVEMBER, 1955

Step right into the big top—booth 405, that is—and see the best performers on earth! The nature of the stars you'll see is already legend in the industry . . . the famous Mueller Brass Co. line of refrigeration and air conditioning products, known for years as tremendous performers. We can only show you part of the act here, so make sure you stop at our tent at the 9th exposition of the Air Conditioning and Refrigeration Industry at Atlantic City, and see all of the best performers on earth.

ABOUT PEOPLE

William F. Bishop has been appointed manager of national account sales and **Robert C. Hughes** has been named manager of sales training by Worthington Corp.'s air conditioning and refrigeration division. Bishop, who joined Worthington in 1939, has



W. F. Bishop

R. C. Hughes

served as assistant division manager of the company's Holyoke, Mass. works. Hughes has been distributor supervisor in the Air Conditioning & Refrigeration Div. since 1953.

Cletus J. Oster has been named plant superintendent by Farr Co., Los Angeles. Since joining the company eight years ago, Oster has served as project engineer and assistant chief engineer. He had previously been assistant plant engineer at Midland Steel Products Corp.

R. E. Rogers, formerly manager of the Los Angeles branch of Foxboro Co., has been named as the company's West Coast sales manager. He will headquartered at Foxboro's newly completed factory in San Leandro, Calif. Replacing Rogers in Los Angeles is **E. W. Pitt**, who has been manager of the company's Shreveport, La., office since 1948. **D. P. Thomas**, industrial engineer, has

been promoted to branch manager at Shreveport. Other new appointments include **M. F. Parr**, who has been made regional engineer at San Leandro; **C. E. Heegard**, added as industrial engineer at Los Angeles, and **C. J. DeVilbiss**, transferred from Dallas to serve as industrial engineer at Shreveport.

company management in the control of costs and expenses, and in budgeting. For the past year and a half, he was executive vice president, general manager and comptroller of Martin-Parry Corp. Wirick has been plant engineer of Tecumseh Products Co. for the past two years.

GUY HENRY DIES



Guy J. Henry, founder and president of Henry Valve Co., Melrose Park, Ill., died in the Oak Park (Ill.) Hospital on September 28, following a short illness. He was 66 years old. Henry had been engaged in the manufacturing business since 1914. His company specializes in making valves and accessories for the refrigeration and air conditioning field. Long active in industry affairs, Henry once served as treasurer of the Refrigeration Equipment Manufacturers Association (now ARI).

R. J. Arft has been appointed vice president and assistant to the president of Servel, Inc., and **Alton G. Wirick** has been named

Don L. Hinmon has been elected vice president of Johns-Manville Sales Corp. and general manager of Johns-Manville Corp.'s industrial insulations div., one of three new operating divisions created by the company's splitting up of its present industrial products division. In his new capacity, Hinmon will be responsible for production and sales of JM's various types of insulation material. He has been with the company since 1936 and has been assistant to the general manager of the industrial products division since 1953.



R. J. Arft

A. G. Wirick

manager of manufacturing for the company's commercial refrigeration division. Arft will work with

Arthur J. Shivers, Jr., Jackson A. Brower, and Thomas A. Sowin have been appointed sales engineers by Kinney Mfg. Div., New York Air Brake Co. Shivers will represent the company in the Philadelphia area, Brower has been added to the New York district sales staff and Sowin has joined Kinney's Chicago district sales organization. Also named were **W. H. Crowley**, recently

For Winter and Summer Air Conditioning

SELL DETROIT'S COMPLETE CONTROL SYSTEM!



DETROIT CONTROLS' Duo-Classic System gives Simplified Control for Year-round Air Conditioning

- ONE** Thermostat
- ONE** Function Selector
- ONE** Universal Control Panel
- ONE** Simple Installation Procedure

Duo-Classic simplifies every job!

Its modern styling, ease of use and simple installation make the Duo-Classic Control system easy to sell.

The Universal Control panel, prewired with high voltage and low voltage terminals for direct connection of the power supply and every component part of the entire heating-cooling system, is easy to install.

Since the Detroit Control Panel and Thermostat are designed for universal application, inventory problems of equipment manufacturers and wholesalers are simplified.

For complete, all-season air conditioning control, you need only install the DETROIT Universal Control Panel and the Duo-Classic thermostat. Build sales and satisfaction!

DETROIT CONTROLS supplies a complete line for the heating, air conditioning and refrigeration industries.



DETROIT CONTROLS CORPORATION
6900 TRUMBULL AVE. • DETROIT 8, MICHIGAN
Division of AMERICAN RADIATOR & STANDARD SANITARY Corporation



Representatives in Principal Cities • Canadian Representatives:
RAILWAY AND ENGINEERING SPECIALTIES, LTD.,
Montreal, Toronto, Winnipeg.



AUTOMATIC CONTROLS for
AIR CONDITIONING • DOMESTIC HEATING • REFRIGERATION • AVIATION • TRANSPORTATION • HOME APPLIANCES • INDUSTRIAL USES
& AIR CONDITIONING • NOVEMBER, 1955
Circle No. 15 on Reader Service Card

appointed chief engineer, and **J. Raymond Marshall**, who becomes equipment sales engineer. Crowley was formerly assistant chief engineer at Kinney and Marshall was previously with Sylvania Electric Products, Inc.

Dan H. Walters has been appointed assistant chief engineer and **Donald H. McFarland** has been named personnel manager by Sherer-Gillett Co. Walters had

previously been employed by Oliver Aviation and McFarland had formerly been associated with the Air Force in its junior management training program.

M. F. Kottmeier has been appointed manager of the Chicago district office of Armstrong Cork Co.'s, insulation division. Kottmeier, who joined the company in 1930, fills the vacancy created by the illness of C. W. Robinson, for-

mer manager of the Chicago office. **William J. Appel** of Armstrong's Pittsburgh office has been named district manager at Pittsburgh to fill the vacancy created by the recent assignment of F. S. Donnelly to the position of manager of insulation sales.

R. E. Cassatt has been appointed manager of commercial sales by York Corp., filling a vacancy created by the resignation of D. C. Seitz. Cassatt was formerly sales manager of the refrigeration appliance division, Fedders-Quigan Co.



Jack Wanted Thorough Drying

JACK'S REFRIGERATION SERVICE
INDUSTRIAL - COMMERCIAL - DOMESTIC
AIR CONDITIONING
1201 WEST PLATT STREET
TAMPA, FLORIDA

Highside Chemicals Co.
10 Colfax Avenue
Clifton, New Jersey

Gentlemen:

For many years I have had the problem of expansion valve failure in the field. Mostly due to existing moisture.

Continuously installing dehydrators and expansion valves began to get costly and nonexistent. The contractors' tendency to complain with so many call back jobs, after losing lots of business, I was introduced to Thawzone by a local jobber. After a few trials on some low temperature plants, I was 100 percent sold on Thawzone. It has helped me eliminate valve failure to the extent my regular customers seldom have a break down.

You can carry a bottle of Thawzone at all times. You should it a necessity in the field.

Yours truly,
Jack Frye
Jack Frye

THERE IS NOTHING LIKE THAWZONE

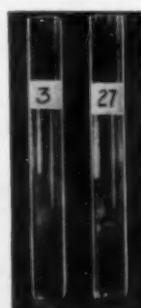
1. Actually destroys moisture...not a mere anti-freeze.
2. Scavenges oxygen...the only product that eliminates this corrosion-causing chemical.
3. Cannot cause pressure drop.
4. Cannot clog with oil.
5. Does not release moisture when temperature changes.
6. May be used in open or hermetic units containing "Freon", methyl chloride, methylene chloride, or isobutane.
7. Costs only about 8 cents per lb. of refrigerant treated. Used in small amounts.

Available in 1 oz., 4 oz., and pint bottles. Call your wholesaler, Highside Chemicals Co., a unit of Stewart Industries, Inc., 4 Colfax Ave., Clifton, N.J.

THAWZONE

The Only Product That DESTROYS Water
and Reaches ALL of it

Circle No. 16 on Reader Service Card



CORROSION TEST

Both tubes contain 25cc of "Freon" 12, .025cc water, 4cc oil, and steel strips. Tube No. 3 also contains 1% Thawzone. Tube No. 27 contains 1% antifreeze instead of Thawzone. This unretouched photo shows how the metal protected by Thawzone remained free of corrosion.

Russ J. Gerde, north-central area representative for Tork Clock Co. Inc., has recently had the Milwaukee area added to his territory. Gerde will continue to cover his territory by private plane and will maintain offices in Minneapolis.



Marvin A. Kagan has been appointed chief engineer of Shana Mfg. Inc. Kagan, who was chief engineer with Mitchell Mfg. Co., for seven and a half years, will be in charge of engineering design and will supervise Shana field engineering.

Franklin L. White has been appointed manager of the Air Conditioning Div. of Philco Corp. White has been associated with York Corp. in an executive capacity. He will report to Raymond A. Rich, vice president and general manager of the Appliance Div. and will work with Jack Cherry,



Coming to the Show?

SEE AMERICA'S ONLY
COMPLETE LINE OF
AUTOMATIC ICE MACHINES

BOOTHES 245 and 246
ALL-INDUSTRIES SHOW
ATLANTIC CITY, N. J.

What a year this 1955 has been for Scotsman Ice Machine sales! Scotsman dealers have moved 'em like lightning, and our factory has been running at extra capacity all year. We are increasing our facilities, already planning for our 1956 season, as we expect it to be the biggest year in ice machine history!

This means that Scotsman dealers are in the best possible position—you offer the most complete line—with the new SF-75-WSA Super Flaker you have something for the small diner and drive-in, an untapped market—you are backed by the company that *specializes* in Ice Machines—and you go into 1956 with a built-up demand at an all-time peak!

Come to see us at the All-Industries Show at Atlantic City, November 28—December 1. We'll be in Booths 245 and 246, and we invite you to stop by and hear more about what successful Scotsman dealers are doing.

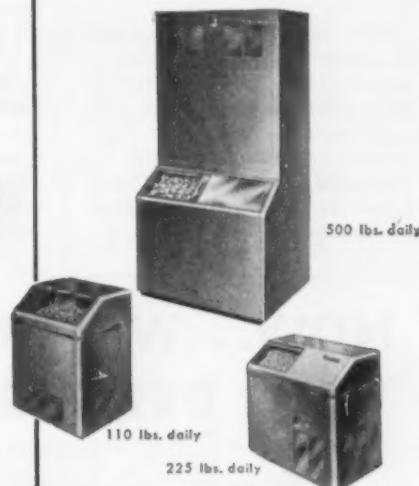
Write for Scotsman dealer information and material on the tremendous new Scotsman Fall Promotion, the Golden 90 Days!

Every SCOTSMAN Ice Machine operates on standard electrical connections.

AMERICAN GAS MACHINE COMPANY
Division of QUEEN STOVE WORKS, INC.
1911 Front Street • Albert Lea, Minnesota

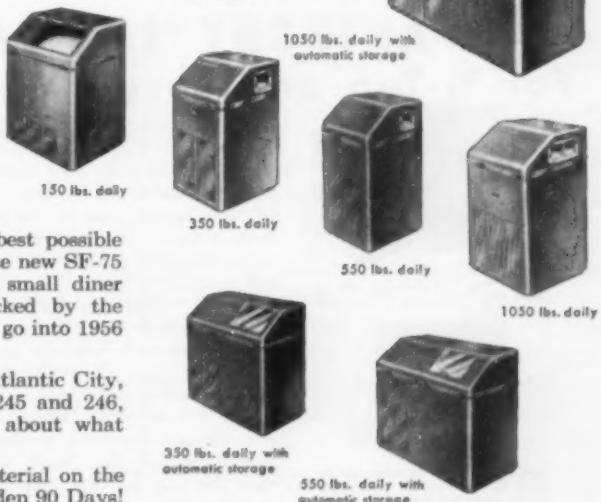
Super Cubers

Produce 100 to 500 pounds daily. Exclusive "Cycle-Matic" control. Guarantees purest, finest ice. Dependable performance.



Super Flakers

Produce 150 to 1050 pounds daily. Efficient, dependable. No choppers, grinders or knives. Simplest flaking mechanism made.



Circle No. 17 on Reader Service Card

& AIR CONDITIONING • NOVEMBER, 1955

sales manager of the Air Conditioning Div., in the overall development of Philco air conditioning.

William E. Hill, Los Angeles, Calif., and **Jay Smith**, Chicago, Ill. Each of the new managers will be responsible for Multi-Vent sales in a five to ten state area.

Five regional sales managers have been appointed to head newly organized territories of Multi-Vent Div., Pyle-National Co. The new sales managers and their head-quarter offices are: **Herbert L. Cushman**, Atlanta, Ga.; **Albert Land, Jr.**, Houston, Tex.; **Jack M. Johnsen**, New York, N.Y.;

A. J. Hackl, manager of the Dallas sales office of the Trane Co., for the past two years, has been appointed to the refrigeration department in La Crosse where he will direct sales of Trane's self-contained air conditioners.

NOW...WHICH SIZE FITS YOUR DELIVERY NEEDS?



NEW ANTHONY "LIFT GATE" For $\frac{3}{4}$ -Ton and Larger Trucks



Model No. 144 handles up to 4000 lbs. on heavy trucks and semi-trailers.



Model No. 145 handles up to 2000 lbs. on 1½-Ton and larger trucks and semi-trailers.



Model No. 130 for Pick-up Trucks with steel express bodies.

This new lower priced Anthony Model No. 144 "LIFT GATE" handles loads up to 1000 lb. (other sizes from 800 to 4000 lbs. are available). Lift Gates in all sizes let one man do the work of three or more when loading or unloading a truck with heavy bulky freight — and in one-third the time. Loading and unloading is done with ease by moving one conveniently located lever to control the powerful hydraulic action of the "LIFT GATE". With the time saved in loading and unloading you can double your deliveries. Damage to merchandise and personnel accidents are greatly reduced. One "extra" delivery each day will pay for your Anthony "LIFT GATE". Write today for complete information. Dept. 5508.



ANTHONY COMPANY
Streator, Illinois

Circle No. 18 on Reader Service Card

J. Thos. Calhoon has been appointed advertising supervisor and **Ray A. Reed** has been named acting district manager for the Minneapolis territory of Janitrol Heating & Air Conditioning Div., Surface Combustion Corp. Calhoon



J. T. Calhoon

R. A. Reed

was formerly a copywriter and account executive with various advertising agencies. Reed, who has been with Janitrol since 1949, will direct sales and service activities for the company's complete line in Minnesota, North Dakota, Montana and sections of South Dakota, Wyoming and Wisconsin.

William P. Sheehan has been named manager of advertising and sales promotion of the Air Conditioning Div. of American Radiator & Standard Sanitary Corp. He succeeds **R. Henry Shine** who has resigned from that position.



W. P. Sheehan

Sheehan comes to American Standard from Levolor Lorentzen, Inc., where he has been assistant advertising manager for the past five years.

Five regional sales assignments were recently made by L.O.F. Glass Fibers Co. Appointed as district managers were **G. O. Hartzell**, Toledo area; **Chester E. Shepperly**, Boston area; and **Thomas D. Leathers**, Pittsburgh area. Hartzell and Shepperly had previously been district managers in their respective cities for the Fiber Glass Div. of L.O.F. and

One of a series appearing in **FORTUNE**, **TIME**,
NEWSWEEK, **BUSINESS WEEK** and leading
architectural magazines.



"Personally, I
always specify
Lewin-Mathes
Copper Tube"

We welcome stiff-necked specifications.

We meet them . . . because the copper we form into tube is first *refined by us* in our own plant.

We meet them . . . because Lewin-Mathes' *completely integrated operation* permits a standard of quality control—from raw material to packaged tube—that is unsurpassed anywhere in the industry.

As refiners, we know the copper going into Lewin-Mathes Tube is pure. As fabricators, we painstakingly control every physical and chemical property of the finished product. And as *integrated specialists*, we take pride in delivering every foot of Lewin-Mathes Copper Tube uniform and perfect . . . to meet your most exacting requirements.

Nothing primitive about Lewin-Mathes supply facilities.
Our products are available through Wholesale Distributors,
serviced by Lewin-Mathes Mill Depots throughout 48 states.

LEWIN MATHES
SAINT LOUIS, MISSOURI
MANUFACTURERS OF
COPPER AND BRASS TUBE, PIPE, ROD AND FITTINGS

Leathers was a sales representative with Glass Fibers, Inc., before their recent merger to form L.O.F. Glass Fibers Co. Also named were **Francis W. McPeek**, recently appointed district sales manager of the Cincinnati area, and **George R. Frick**, newly appointed field representative in the Boston area. McPeek was formerly manager of railroad and equipment sales for Glass Fibers, Inc., and Frick previously was employed by Woods Hole Oceanographic Institute.

Joseph Wait has been promoted to the Washington, D.C. sales office of Trane Co. A veteran sales engineer, Wait has had eight years of previous experience in refrigeration and air conditioning.

•

Several administrative personnel appointments have been announced by the sales department of Whirlpool-Seeger Corp. **John W. Craig**, vice president of Whirlpool-Seeger and former RCA vice president, is director of merchandise development. **Jack Sparks** has been appointed general sales manager for distribution; **Roy Howard**, merchandising manager; **Harvey Weimer**, formerly with Crosley-Bendix, market research manager; **Lee H. D. Baker**, former vice president of Admiral Corp., general manager of refrigerator div., and **Austin Rising**, general manager of both range and air conditioner divs. Also appointed to the air conditioner div. were **Thomas Ford**, product manager; **Joseph B. Ogden**, sales manager, and **Richard Sierk**, sales promotion manager.

IDEAL

Leading the Way
in
Commercial Refrigeration
FOR MODERN FOOD MARKETS

Self Service Meat Display.

Refrigerated Produce

Frozen Food Case

Double Decker Dairy

Check These Way-ahead IDEAL Features

- ✓ Auxiliary shelves for extra sales.
- ✓ Porcelain and stainless steel on interiors and exteriors.
- ✓ Color band styling.
- ✓ Scientific refrigeration — reduces spoilage.
- ✓ Dairy case bottom shelf capacity — two milk containers high.
- ✓ Ful-Vue, Easy Reach design.
- ✓ Complete line of refrigerated equipment for all food stores.

IDEAL ENGINEERING & DESIGN SERVICE
Complete store engineering and designing facilities available on request.

Exclusive franchises available
IDEAL STORE FIXTURE CO., Inc.

Main Office
41 Utica Ave.,
Brooklyn 13, N. Y.

Branch Office
498 Broad St.
Newark, N. J.

Quality and Service • Since 1928
Circle No. 20 on Reader Service Card



A. S. Bross

Albert S. Bross has been appointed vice president in charge of sales and **Floyd M. Kinney** has been named chief motor engineer by O. A. Sutton Corp. Bross will be responsible for coordination of sales and merchandising for Vornado air conditioners and air circulators. He was formerly vice president and general sales manager for Lander, Frary & Clark. Kinney was previously chief engineer at Universal Electric Western Co.

•

A. O. Smith Corporation has announced that **James F. Donnelly**, formerly assistant manager of its Permaglas Div. will rejoin the company as special assistant to F. S. Cornell, vice-president and general manager. For the last three years Donnelly has been a vice president of Servel, Inc.

•

Several executive personnel appointments were recently announced by the newly organized heating and air conditioning division of National-U.S. Radiator Corp. **C. H. Austin** has been appointed assistant to the divisional

vice president at the Johnstown, Pa., headquarters of the sales organization. Departmental sales managers named were: **R. S. Doherty**, manager of "Packet" and "Super-Pak" sales; **H. J. Muhllner**, manager of heating accessories, assisted by **W. C. Callahan**; **S. Moroh**, manager of air conditioning and warm air section; **R. O. Shelkey**, manager of finned surface heating products, and **J. P. Bird**, chief of sales and price analysis, assisted by **D. A. Hamilton** and **A. J. Ellerbrun**.

Thomas B. Weidner, Jr. and Charles L. Spradlin have been appointed district factory representatives by Schaefer, Inc., to cover territory served by the company's newly constructed Aberdeen, Md. plant. Weidner, who has



T. B. Weidner, Jr. C. L. Spradlin

been sales and sales promotion manager for several ice cream companies, will cover Delaware, Maryland, eastern Pennsylvania and parts of New Jersey and West Virginia. Spradlin will cover Virginia, North and South Carolina, Georgia, Alabama and Florida. He previously had been associated with the ice cream division of Swift & Co. for 20 years.

Richard S. Brent has been named district sales engineer of the Chicago district office of J. F. Pritchard & Co. Brent joined the Pritchard organization in 1952 as an application engineer.

Three organizational changes were recently made by Gibson Refrigerator Co. **J. L. Johnson**, formerly vice president of Gibson

Amazingly simple EASY-FLO or SIL-FOS brazing pays big dividends



EASY DOES IT—An endless chain runs at predetermined speed between a pair of city gas-air burners. Operator places bodies in angle-iron carriers, takes spuds with preplaced EASY-FLO rings, dips them in Handy Flux and sets them in bodies. The rest is automatic. Using only one row of carriers, output is 18 a minute.

Export "Know-how" at your service

In cooperation with the manufacturer we worked out the valve brazing set-up — and we're ready to work with you. As originators of EASY-FLO and SIL-FOS low-temperature silver brazing alloys, we offer you the benefit of the maximum technical knowledge about the process and practical experience in its application available anywhere today. There's no obligation for this assistance. Just phone or write when you would like a field service engineer to call.

It's a safe bet you can get a better product at much lower cost on several of your metal parts by designing them for EASY-FLO or SIL-FOS silver brazed construction — supplemented by a simple production set-up that makes the brazing so easy — anybody can do it!

Here's an example — a radiator valve. It is made of a simple drawn body and a screw machine part, brazed with EASY-FLO. And the joining is done on a set-up that "automation-izes" the actual brazing. The net results — a smaller, trimmer valve — and a favorably low production cost.

FOR THE FACTS IN PRINT...

Write for Bulletin 20. It gives them all plus a lot of useful information about fast, low-cost production brazing.



HANDY & HARMAN

General Offices: 82 Fulton St., New York 38, N. Y.

DISTRIBUTORS IN PRINCIPAL CITIES

OFFICES and PLANTS
BRIDGEPORT, CONN.
PROVIDENCE, R. I.
CHICAGO, ILL.
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DETROIT, MICH.
LOS ANGELES, CALIF.
TORONTO, CANADA
MONTREAL, CANADA

There's no "... or equal" for EASY-FLO and SIL-FOS

Circle No. 21 on Reader Service Card

sales, was appointed vice president and general manager of the Gibson Div. **William C. Conley**, formerly director of products, Norge Div., Borg-Warner Corp., has been named vice president in charge of Gibson sales, and **F. L. Sacha** of Gibson was appointed manager of Gibson refrigerator sales.

Don McAnally was recently appointed sales promotion manager of L.O.F. Glass Fibers Co.

He will work closely with all area sales representatives and with distributors of the company's products, and will also serve in a liaison capacity on sales, public relations and product publicity activities.

Edward Becker, formerly New York district sales manager, has been named sales manager of its refrigeration division by Fedders-Quigan Corp. The post was vacated by the resignation of Rob-

ert Cassatt. In another administrative change, **U. V. Muscio** will add interim duties of vice president in charge of sales to his present responsibilities. He temporarily fills a vacancy created by the resignation of Anthony J. De Fino who had operated in that capacity for the past two months.

Anthony J. De Fino has been appointed vice president and general manager of the air conditioning division of Servel, Inc. In his new capacity, De Fino will be in charge of manufacturing, marketing, distribution, and customer service. He had previously been vice president and general manager of Fedders-Quigan Corp.



With motor manufacturers C-D Motor Capacitors are first by far. With motor, refrigerator, air conditioning, oil burner and household appliance maintenance servicemen, C-D capacitors are first choice. You can be sure of C-D's outstanding field performance record and ease of installation. This, plus C-D's great range of types makes it the preferred line among men of experience. That's why Distributors who know, carry the complete Cornell-Dubilier line.

WANT THE BEST IN MOTOR CAPACITORS? C-D TO BE SURE!



Always insist on C-D—there's a right type for every motor. Ask your C-D distributor for your free copy of C-D's famous motor capacitor Manual and Catalog No. 163. He's listed in your classified 'phone book. Cornell-Dubilier Electric Corporation, Dept. C-163, South Plainfield, New Jersey.



CONSISTENTLY
DEPENDABLE
CORNELL-DUBILIER CAPACITORS

PLANTS IN SOUTH PLAINFIELD, N. J.; NEW BEDFORD, WORCESTER AND CAMBRIDGE, MASS.; PROVIDENCE AND HOPE VALLEY, R. I.; INDIANAPOLIS, IND.; SANFORD AND PUQUAY SPRINGS, N. C.; SUBSIDIARY: THE RADIANT CORPORATION, CLEVELAND, O.

THERE ARE MORE C-D CAPACITORS IN USE TODAY THAN ANY OTHER MAKE

Circle No. 22 on Reader Service Card

Mansur Storrs and **James G. Kelly** have been named sales representatives for Marsh Instrument Co. Storrs will cover Maine, Ver-



M. Storrs

J. G. Kelly

mont, New Hampshire, Connecticut, Rhode Island and Massachusetts. Kelly will represent the company in Colorado, Iowa, Nebraska and Wyoming.

John J. Sidwell has been named district sales manager in charge of the new Chicago district office of Young Radiator Co. He was formerly a sales engineer in the company's Racine, Wis. office.

Continued on page 129



PACKLESS VALVE

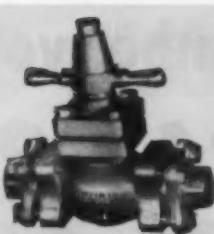
With balanced-action. Sizes $\frac{1}{4}$ " through $\frac{1}{2}$ " P.I., $\frac{1}{4}$ " through $\frac{1}{2}$ " O.D.S.



AMMONIA VALVE
Forged steel or semi-steel bodies. Sizes $\frac{1}{4}$ " through $2\frac{1}{2}$ " P.P.T., $1\frac{1}{2}$ " through 6" P.P.T. slip-on welding or welding neck flanges.



WING CAP VALVE
Non-ferrous. Sizes $\frac{1}{4}$ " through $4\frac{1}{2}$ " O.D.S.



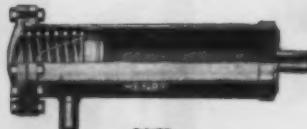
WING CAP VALVE
Semi-steel screwed or flanged types. Sizes $1\frac{1}{4}$ " through 6".



**YOU PAY—
no premium for...
the extra advantages
found in
Henry products
or for the extra satisfaction
that follows their use**



CHECK VALVE
Piston Type for Froze. Sizes $\frac{1}{4}$ " through $4\frac{1}{2}$ " O.D.S.



DRIFT
Cartridge type 12 to 500 cu. in. capacity. Sizes $\frac{1}{4}$ " to $2\frac{1}{2}$ " O.D.S.



DRIER
Large diameter and capacity. All brass construction. Minimum pressure drop.



**DIAPHRAGM
RELIEF VALVE**
Operates independently of outlet pressure permitting use of rupture disc assembly on outlet side without increasing initial leak pressure. Forged brass bodies. Sizes $\frac{1}{4}$ " & $\frac{1}{2}$ " I.P.S., $\frac{1}{2}$ " & $\frac{1}{2}$ " O.D.S.



**STRAIGHT-
THROUGH
RELIEF VALVE**
Large capacity—All brass construction. Sizes $\frac{1}{2}$ " through $1\frac{1}{2}$ " P.T. and $1\frac{1}{2}$ " S.M.E. standards. National Board Certified. Other sizes and types available.

See Our Booth 608-609
9th Exposition Air Conditioning
& Refrigeration Industry
Atlantic City, N. J.
Nov. 28-Dec. 1

Stocked and Sold by Leading Jobbers

VALVES • DRIERS • STRAINERS • CONTROL DEVICES and ACCESSORIES FOR REFRIGERATION and AIR CONDITIONING and INDUSTRIAL APPLICATIONS

HENRY VALVE COMPANY

MELROSE PARK, ILLINOIS Chicago Suburb

Cable HEVALCO, MELROSE PARK, ILLINOIS

Circle No. 23 on Reader Service Card

& AIR CONDITIONING • NOVEMBER, 1955

Remember your winning numbers AT ATLANTIC CITY*

421 AND 314 ARE THE BOOTHS WHERE YOU'LL SEE

Curtis AIR CONDITIONING EQUIPMENT

NEW

PACKAGED AIR CONDITIONERS

... 2, 3, 5, 7½, 10, 15 and 20 ton sizes... handsome, new design... flexible and versatile.

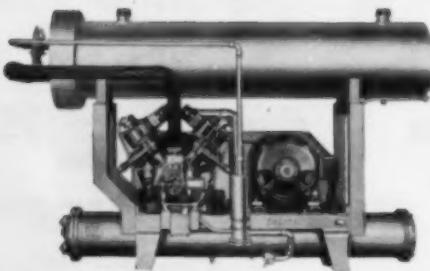
New models
to be shown
for the First
time at the
ARI Show

New unit to be
shown for the
First time at the
ARI Show

NEW

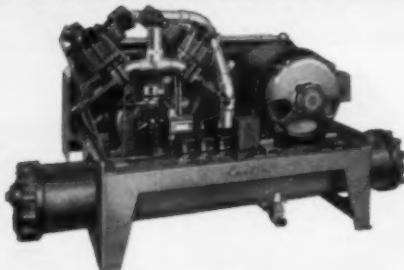
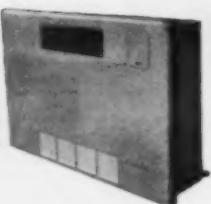
AIR-COOLED HOME AIR CONDITIONERS

... 2, 3 and 5 tons... easy to install... eliminate water problem. Condensing unit installed outdoors. No bulky equipment in basement.



WATER CHILLERS

... 7½ to 100 tons... with *Console Units* to provide room-controlled cooling without ductwork.



CONDENSING UNITS

... air-cooled from $\frac{1}{4}$ to 3 tons... shell-and-tube from 7½ to 100 tons... combination air and water-cooled from $\frac{1}{2}$ to 3 tons.

*of the ARI Show, Nov. 28—Dec. 1...
Be sure to see us!

CAN'T COME...? If you're unable to see us at
Atlantic City, we'll be glad to rush you full information
on any of these products. Write us!

Curtis

MANUFACTURING COMPANY

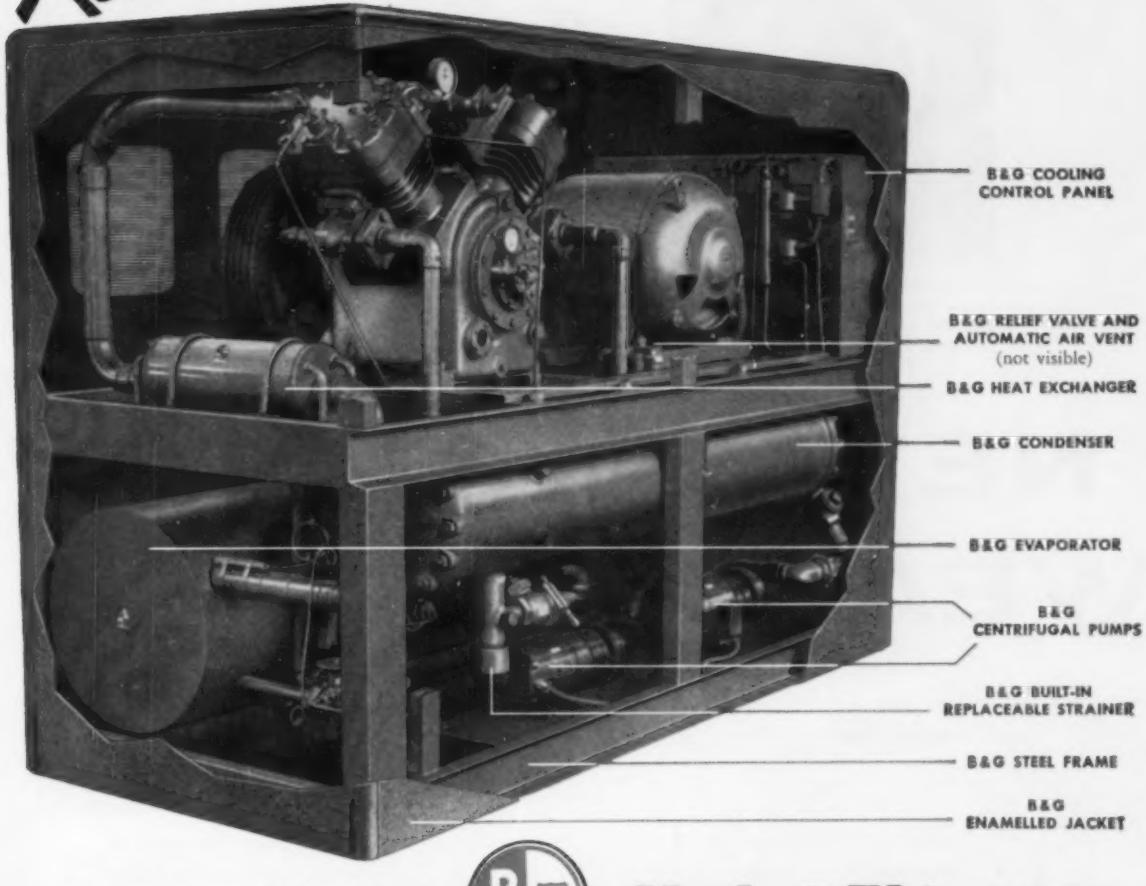
Refrigeration Division

1915 Kienlen Avenue, St. Louis 20, Missouri

Circle No. 24 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

Revolutionary LIQUID COOLER



A COMPLETE



Hydro-Flo UNIT...

An entirely new conception of a package liquid cooler! More features for efficient, trouble-free performance than you'd believe could be packed into one unit! Literally a plug-in unit for homes, apartments, hotels, commercial and industrial buildings and process work.

This is a B&G product . . . built to the high standards which make the B&G label a warranty of satisfaction. Many special features are incorporated as standard equipment which in similar products are "extras" or not available at all.

Consider just a few of the design highlights. The low pressure drop through the evaporator permits a substantial reduction in system pump sizes. Location of the evaporator under the compressor results in a lower center of gravity—easier to install and service. Non-recycling pump-down . . . and an integrated electrical control system which provides a high degree of automation without extra cost. Completely wired including chiller and tower pump . . . requires power supply only.

The B&G Package Liquid Cooler can be specified for a wide variety of applications . . . either as a separate space cooling unit . . . or in combination with a forced hot water system . . . or for the numerous industrial processes requiring controlled cooling of materials. Available in capacities from 7½ to 100 tons.

See the B&G PACKAGE LIQUID COOLER at Booths 519-20
Air Conditioning and Refrigeration Exposition

& AIR CONDITIONING • NOVEMBER, 1955

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Get all the facts!

Bulletin HB-755 will give you the complete story of the B&G Package Liquid Cooler. Includes numerous application diagrams and specifications for combination heating and cooling systems.

*Box U.S. Pat. Off.

BELL & GOSSETT
C O M P A N Y
Dept. EC-45, Morton Grove, Illinois

Canadian Licensee: S. A. Armstrong, Ltd., 1400 O'Connor Drive, West Toronto



New Golden Aerodial. It's 22-karat gold-plated and beautiful. Lucite dome hinges over main control, thermostat knob and reset button. Easy reset reduces service calls.

*the all-new, all-around
air conditioner
designed for lower
installation costs!*

NEW CARRIER WEATHERMAKER

Here's the first self-contained air conditioner designed for lower installation costs—with or without ductwork. Check these exclusive new time-and-trouble-saving features:



ADAPTABLE five-way air return. Duct return through bottom or back. Or matching pedestal base can be added so air returns at front or sides.



PRE-WIRED electrical center. All connections are made in one outlet box at the side. No additional internal electric wiring is necessary.



EXCLUSIVE solid front panel. No return air grille to block off for duct jobs. Snap locks release panel for easy access. No tools are needed.



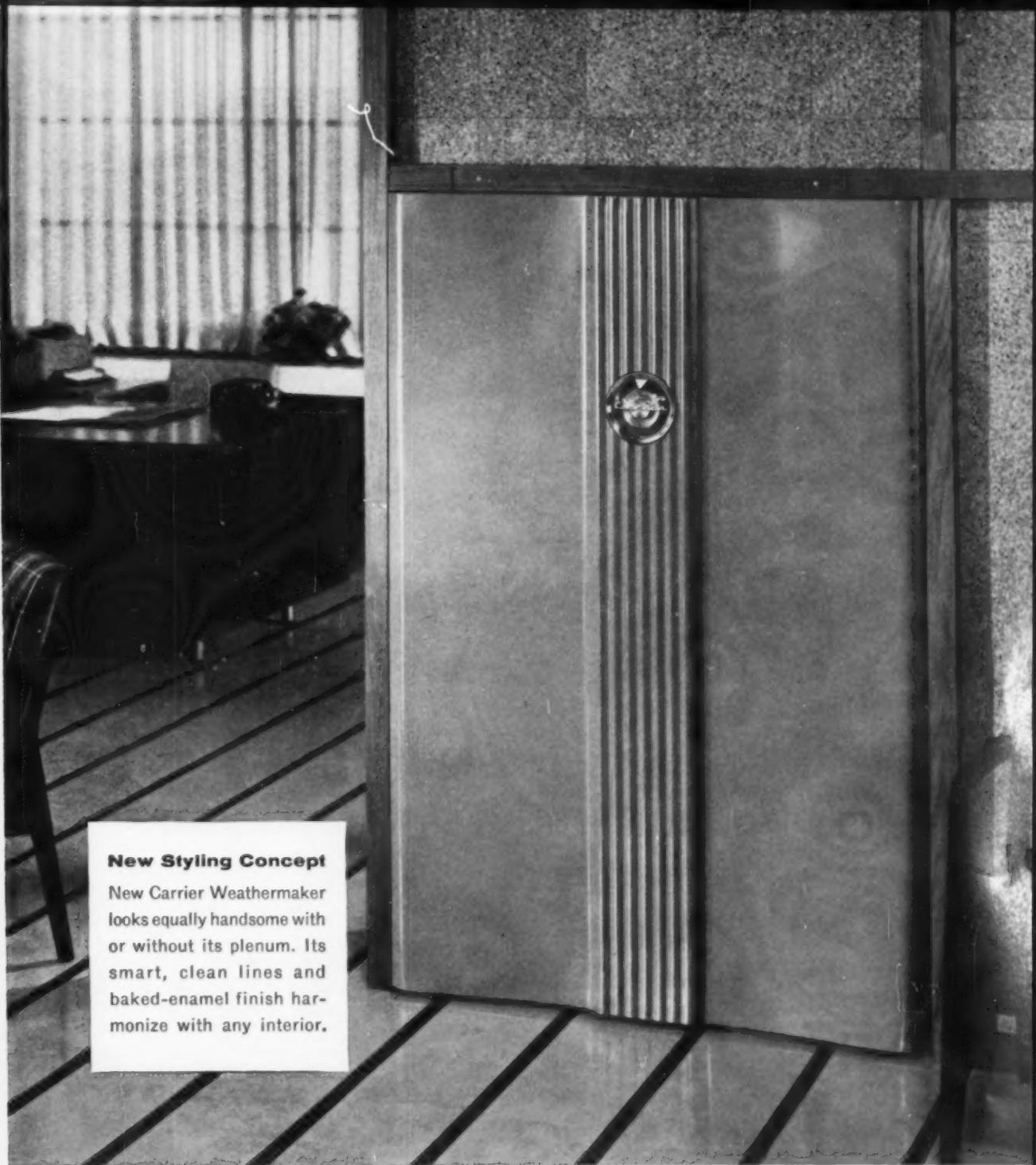
EXTRA-LARGE add-on plenum. Easily mounted for installations not requiring ductwork. Hinged grille panel is counterbalanced for easy access. Full directional air control.



ALTERNATE fan discharge. L-shaped fan platform easily inverted for rear discharge where headroom is low. You avoid costly cutting and patching of unit in changing flow.



BUILT-IN PROVISION for heating coil. No need to alter unit when you add matching heating coil—uses either steam or hot water to heat the same area cooled by unit.



New Styling Concept

New Carrier Weathermaker looks equally handsome with or without its plenum. Its smart, clean lines and baked-enamel finish harmonize with any interior.

\$40,000 WEATHERMAKER PAYOFF

—a contest for Carrier dealers only!

Win a free trip to anywhere in the U. S. plus \$10,000 cash! Four regional top prizes. Get in touch with your Carrier Distributor for complete details.

BE A CARRIER DEALER—and share in these big prizes. You have until November 23rd to qualify. Mail coupon today.

CARRIER CORPORATION, 321 S. Geddes Street, Syracuse, New York

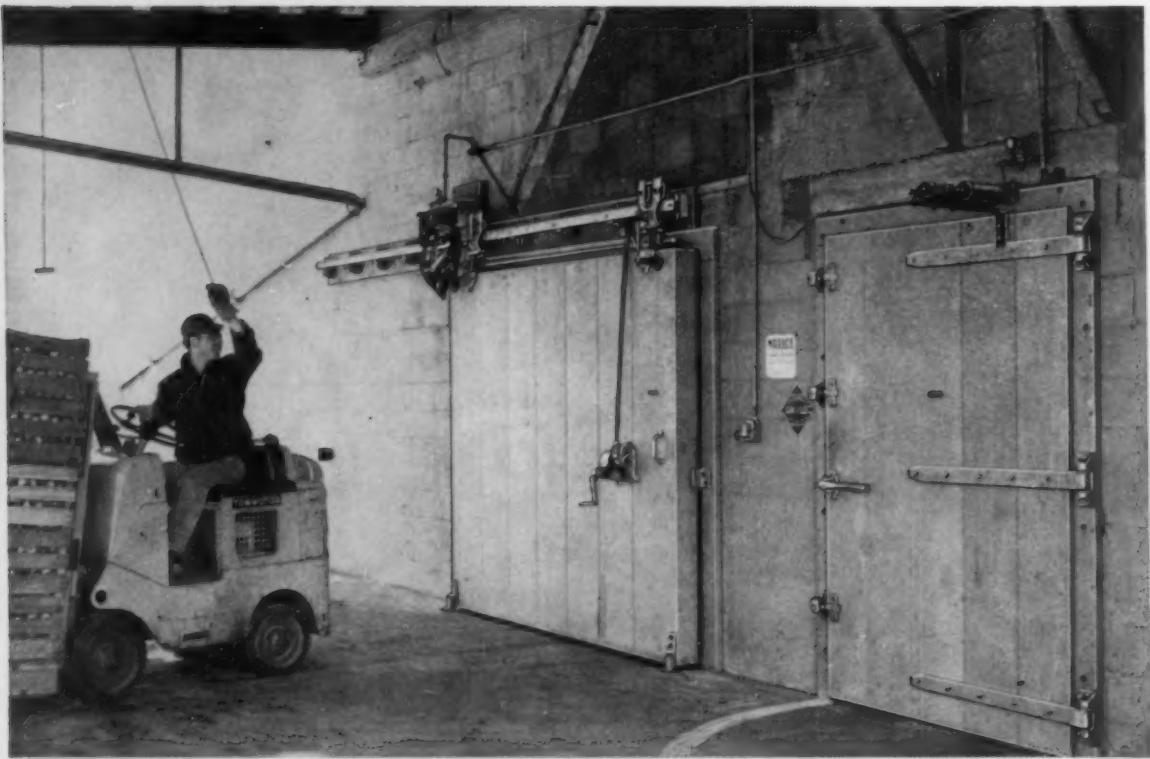
I'm interested in becoming a Carrier Weathermaker dealer. Please send name of my nearest distributor.

Name _____

Company _____

Address _____

City _____ Zone _____ State _____



Jamison Horizontal Sliding Door saves space on the loading dock. Remote power operation saves operator time and effort.

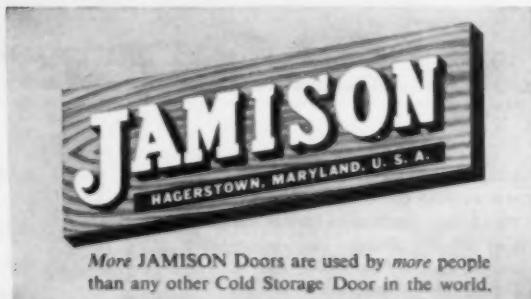
Power Operation of JAMISON Doors Speeds Handling for Food Processor



Ample width of metal clad Series "50" door opening allows adequate clearance for truck and load.

C. H. Musselman Co., producers of food products at Biglersville, Pa., selected Jamison Doors for their apple cold storage. This gave them the efficient insulation and effective seal of Jamison door design. For rapid, automatic operation, both doors are equipped for remote power operation which saves time, and effort.

Count on Jamison Doors to solve your particular problem. Consult your architect or write direct to Jamison Cold Storage Door Company, Hagerstown, Md., U.S.A.



More JAMISON Doors are used by more people than any other Cold Storage Door in the world.

See us at Booth 329 All Industry Show

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NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

Planning on
Seein' you!



9th
EXPOSITION

AIR CONDITIONING
and
REFRIGERATION
INDUSTRY

November 28th - December 1st

ATLANTIC CITY, N. J.

SPORLAN
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IMPERIAL
"MAGIC EYE"*
 the LIQUID INDICATOR
**"That SPELLS OUT
 the Answer"**

*T.M.



FULL . . . "Magic Eye" says system is fully charged

**ASSURES FASTER,
 MORE POSITIVE READING**

Now you can have all the advantages of the Imperial "Magic Eye" Liquid Indicator in a wide range of tube sizes.

With the "Magic Eye" there is no squinting or guessing. When the crystal "Magic Eye" says "FULL" you know the system is fully charged. The word "FULL" disappears when there is an insufficient amount of refrigerant in the system.

Provides all the extra strength and leak-proof advantages of single port design. Heavy crystal glass in port hole has positive seal with confined sealing medium.

See Your Jobber



NOW

Available with
TUBE EXTENSIONS
 for Solder Connections

No need to disassemble when
 soldering—Tube extensions dissipate
 heat . . . prevent damage to glass and
 sealing elements. Furnished in sizes
 for $\frac{1}{4}$ " to $2\frac{1}{2}$ " O.D. tubing.

"Magic Eye" Liquid Indicators with
 flare connections available in sizes
 for $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " O.D. tubing.

AVAILABLE IN THESE SIZES

No. 270-C, Male Flare Connections, $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " O.D.

No. 271-C, Fem. Flare Swivel Male Flare Connection,
 $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ " O.D.

No. 275-CS, Solder Connections, $\frac{1}{4}$ ", $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ",
 $\frac{3}{4}$ ", $1\frac{1}{8}$ ", $1\frac{1}{4}$ ", $1\frac{1}{2}$ ", $2\frac{1}{8}$ ".

FITTINGS • VALVES • DRIERS • FILTERS
 FLOATS • CHARGING LINES • TOOLS
 FOR Cutting, Flaring, Bending, Pinch-Off, Swedging

THE IMPERIAL BRASS MFG. CO., 536 S. Racine Ave., Chicago 7, Ill.
 In Canada: 334 Lauder Ave., Toronto, Ontario

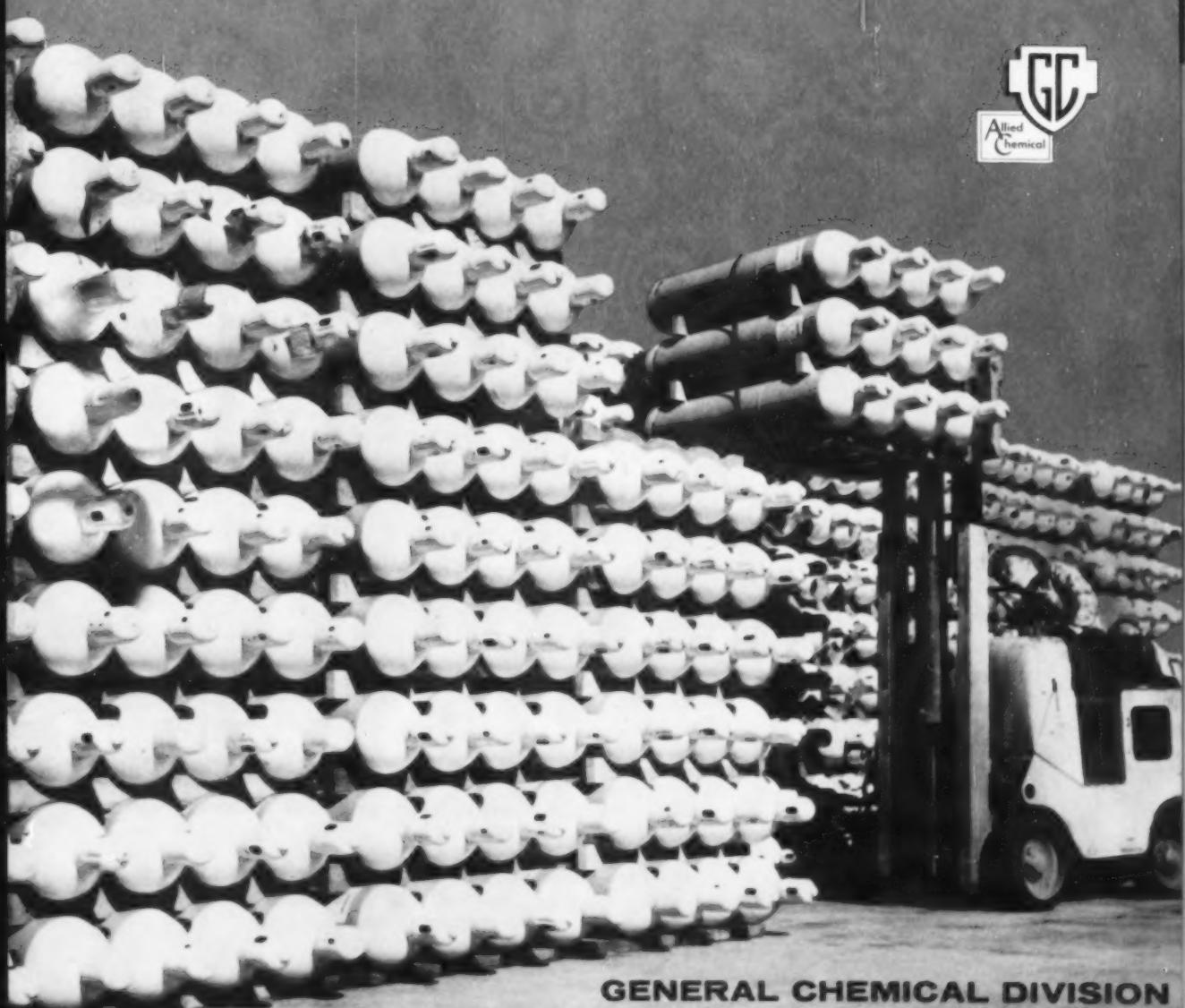
IMPERIAL

Circle No. 29 on Reader Service Card

genetron®

Super-Dry

REFRIGERANTS



GENERAL CHEMICAL DIVISION
ALLIED CHEMICAL & DYE CORPORATION

genetron 11 ORANGE LABEL

TRICHLOROMONOFUOROMETHANE

Quality Specifications

Moisture wt. %, max.	0.0015
Chlorides	none
High boiling impurities—vol. %, max.	0.05
Boiling pt. at 760 mm. Hg °F	74.7
Boiling range °F (to 85% pt.), max.	0.5

USES

Trichloromonofluoromethane ("Genetron" 11) finds widespread use as a refrigerant in industrial and commercial refrigeration and air conditioning systems using single or multi-stage centrifugal compressors. It can also be used for either direct or indirect expansion-type systems.

genetron 12 WHITE LABEL

DICHLORODIFLUOROMETHANE

Quality Specifications

Moisture wt. %, max.	0.0010
Chlorides	none
High boiling impurities—vol. %, max.	0.05
Non-condensable gases (gases insoluble in perchloroethylene)—vol. % in vapor phase, max.	1.5
Boiling pt. at 760 mm. Hg °F max.	-21.6
Boiling range °F (to 85% pt.), max.	0.9

USES

Dichlorodifluoromethane ("Genetron" 12) and Monochlorodifluoromethane ("Genetron" 141) are the most widely used organic fluorine refrigerants. They are used in virtually all types of refrigeration and air conditioning equipment, large and small, household and industrial, direct and indirect expansion systems. The choice of refrigerant is dependent largely upon the design and operating requirements of the units and manufacturers' preferences.

genetron 141 GREEN LABEL

MONOCHLORODIFLUOROMETHANE

Quality Specifications

Moisture wt. %, max.	0.0010
Chlorides	none
High boiling impurities—vol. %, max.	0.05
Non-condensable gases (gases insoluble in perchloroethylene)—vol. % in vapor phase, max.	1.5
Boiling pt. at 760 mm. Hg °F	-41.4
Boiling range °F (to 85% pt.), max.	0.9

Some of the typical units in which "Genetron" 12 and 141 are used: refrigerators, freezers, frozen food lockers, window air conditioners, home or office console units, large store units, large custom-built units for commercial comfort or industrial processes, large home units for addition to present hot air heating systems, and mobile units for transportation equipment.

genetron 226 PURPLE LABEL

TRICHLOROTRIFLUOROETHANE

Quality Specifications

Moisture wt. %, max.	0.0025
Chlorides	none
High boiling impurities—vol. %, max.	0.05
Boiling pt. at 760 mm. Hg °F	117.6
Boiling range °F (to 85% pt.), max.	1.8

USES

Trichlorotrifluoroethane ("Genetron" 226) is used in 25-ton and larger centrifugal compressors, primarily for large comfort cooling systems, brine cooling systems, and other commercial and industrial air conditioning and refrigeration systems.

AVAILABLE EVERYWHERE!

Genetron Super-Dry Refrigerants
are available from Refrigeration Wholesalers
throughout the country.

Facts Worth Knowing About genetrons

TESTED! APPROVED!

"Genetron" refrigerants are identical and interchangeable in all respects with comparable fluorinated hydrocarbon refrigerants produced by any other manufacturer meeting the same strict refrigerant specifications. They have been tested exhaustively and approved in every case as meeting or surpassing the high quality standards required for fluorinated hydrocarbon refrigerants. That is why leading refrigeration and air conditioning equipment manufacturers, and the U. S. Government, have approved and certified "Genetron" Super-Dry Refrigerants for original or replacement charge in America's finest equipment.

COMPARE!

Careful control at every step in the manufacture of "Genetron" refrigerants results in products of highest purity, which are extremely low in moisture content and other undesirable impurities. The quality of current production consistently surpasses the rigid manufacturing specifications listed for these products.

Super-Dry

Stable

Safe

Non-Corrosive

Non-Flammable

Non-Toxic

ADDITIONAL DATA ON NEXT PAGE



Facts Worth Knowing About

GENERAL CHEMICAL

For well over half a century General Chemical has been one of America's largest and most highly regarded chemical producers. Its slogan—Basic Chemicals for American Industry—characterizes the broad scope of its services and the wide range of its products. That is why the Refrigeration and Air Conditioning Industry can look to General as a reliable source for its basic refrigerants with the same confidence shared by other major industries in obtaining their primary chemical needs.

General's ability as a producer of fluorinated hydrocarbon refrigerants is firmly founded on:

- Its sound basic position—mines, raw materials, reserves
- Its extensive fluorine research and development organizations—among the nation's finest
- Its extensive production facilities for fluorine chemicals—operated by specialists whose experience has contributed many major technical advances to the commercial manufacture of such products
- Its position as the country's primary producer of hydrofluoric acid and elemental fluorine, as well as the raw materials for their manufacture. These two products are the basic chemicals from which almost all other fluorine compounds are made



"Genetron" refrigerants are products of General Chemical's extensive fluorine research program which has developed over 90 fluorine products for science and industry.



In addition to its expanded "Genetron" production center at Baton Rouge, La., General Chemical has large new "Genetron" facilities at Danville, Ill. These, plus others in the industry, assure refrigerant capacity to meet all needs for the foreseeable future.

Selected Physical Data

(Performance based on 5°F evaporator temperature
and 86°F condenser temperature)

	11	12	141	226
Chemical Formulae	CCl_2F_2	CHClF_2	$\text{C}_2\text{Cl}_2\text{F}_3$	$\text{C}_2\text{Cl}_2\text{F}_3$
Molecular Weight	120.9	86.5	187.4	187.4
Boiling Pt. (°F) at 1 Atmosphere Pressure	137.4	-21.6	-41.4	117.6
Evaporator Pressure at 5°F (p.s.i.g.)	74.7	24.0*	11.8	28.3
Condensing Point (°F) at 86°F (p.s.i.g.)	3.6	93.2	159.8	13.9*
Freezing Point (°F) at 1 Atmosphere Pressure	-168	-252	-256	-31
Critical Temperature (°F)	388	233	205	417
Critical Pressure (p.s.i. absolute)	635	582	716	495
Compressor Discharge Temperature (°F)	112	100	131	86
Compression Ratio (86°F/5°F)	6.24	4.07	4.06	8.02
Saturated Liquid Viscosity at 5°F (centipoises)	0.650	0.328	0.286	1.200
Saturated Liquid Viscosity at 86°F (centipoises)	0.405	0.251	0.229	0.619
Vapor Viscosity at 5°F & 1 Atmosphere Pressure (centipoises)	0.0096	0.0114	0.0114	0.0093†
Vapor Viscosity at 86°F & 1 Atmosphere Pressure (centipoises)	0.0111	0.0127	0.0131	0.0105†
Saturated Liquid Density at 5°F (lbs./cu.ft.)	97.88	90.00	83.34	103.20
Saturated Liquid Density at 86°F (lbs./cu.ft.)	91.38	80.63	73.36	96.96
Saturated Vapor Density at 5°F (lbs./cu.ft.)	0.0815	0.6735	0.8034	0.0370
Saturated Vapor Density at 86°F (lbs./cu.ft.)	0.4461	2.569	3.213	0.2569
Specific Volume of Saturated Vapor at 5°F (cu.ft./lb.)	12.27	1.49	1.25	27.04
Latent Heat of Vaporization at 5°F (B.t.u./lb.)	84.0	69.5	93.6	70.6
Net Refrig. Effect of Liquid -86°F (B.t.u./lb.)	67.5	51.1	69.3	53.7
Specific Heat of Liquid at 86°F (B.t.u./lb. -F)	0.21	0.24	0.34	0.22
Specific Heat of Vapor at Constant Pressure of 1 Atmosphere & 86°F (B.t.u./lb. -F)	0.13	0.15	0.15	0.15
Specific Heat Ratio at 86°F & 1 Atm. $\bar{k} = C_p/C_v$	1.14	1.14	1.18	1.09
Coefficient of Performance	5.09	4.70	4.66	4.92
Horsepower/Ton Refrigeration	0.927	1.011	1.011	0.960
Refrigerant Circulated/Ton Refrig. (lbs./min.)	2.96	3.92	2.89	3.73
Liquid Circulated/Ton Refrig. (cu.in./min.)	56.0	83.9	68.0	66.5
Compressor Displacement/Ton Refrig. (c.f.m.)	36.32	5.81	3.60	100.76
Thermal Conductivity of Saturated Liquid at 32°F (B.t.u./ft.² hr. °F)	0.0680	0.0559	0.0704	0.0576
Thermal Conductivity of Saturated Liquid at 86°F (B.t.u./ft.² hr. °F)	0.0609	0.0492	0.0595	0.0521
Thermal Conductivity of Vapor at 32°F & 1 Atm. Pressure (B.t.u./ft.² hr. °F)	0.0045	0.0048	0.0060	0.0038‡
Thermal Conductivity of Vapor at 86°F & 1 Atm. Pressure (B.t.u./ft.² hr. °F)	0.0048	0.0056	0.0068	0.0045‡
Toxicity (Underwriters' Laboratories Group No.)	5A	6	5A	4.5
Flammability & Explosivity	None	None	None	None
Relative Dielectric Strength of Vapor (compared with Ethyl Chloride as Unity)	3.00	2.40	1.31	2.60
Odor	Ethereal	Ethereal	Ethereal	Ethereal
Type of Compressor in Which Usually Used	All	20 to 50	-100	-25 to 50
Evaporator Temperature Range, °F	-20 to 50	50	50	50
Water Sol. in Liq. Refrig. at 32°F (gms./100 gms. Refrig.)	0.0036	0.0026	0.060	0.0036
Water Sol. in Liq. Refrig. at 86°F (gms./100 gms. Refrig.)	0.013	0.012	0.15	0.013
Oil Solubility (Miscibility With Lubricating Oils)	Yes	Yes	Yes	Yes

*Inches of mercury vacuum

†At 0.5 atmosphere

‡At 0.5 atmosphere

*All vapor pressures are shown as partial.

Blue figures are shown as

inches of Mercury Vacuum

Vapor Pressures*

	Temp. °F	Temp. °C	genetron 11	genetron 12	genetron 141	genetron 226
	-100	-73.3	29.8	27.0	25.1	25.1
	-90	-67.8	29.7	25.7	23.0	23.0
	-80	-62.2	29.6	24.1	20.2	20.2
	-70	-56.7	29.4	21.8	16.6	16.6
	-60	-51.1	29.2	19.0	11.9	11.9
	-50	-45.6	28.9	15.4	6.0	6.0
	-40	-40.0	28.4	11.0	0.6	0.6
	-35	-37.2	28.1	8.3	2.7	2.7
	-30	-34.4	27.8	5.5	5.0	29.3
	-25	-31.7	27.5	2.3	7.6	29.2
	-20	-28.9	27.0	0.6	10.3	29.1
	-15	-26.1	26.6	2.5	13.3	28.9
	-10	-23.3	26.0	4.5	16.6	28.7
	-5	-20.6	25.4	6.7	20.2	28.5
	0	-17.8	24.7	9.2	24.1	28.2
	5	-15.0	24.0	11.8	28.3	27.9
	10	-12.2	23.1	14.7	32.9	27.6
	15	-9.4	22.1	17.7	37.9	27.2
	20	-6.7	21.1	11.1	43.3	26.8
	25	-3.9	19.9	24.6	49.0	26.3
	30	-1.1	18.6	28.5	55.2	25.8
	32	0	18.1	30.1	57.8	25.6
	35	1.7	17.2	32.6	61.9	25.2
	40	4.4	15.6	37.0	69.0	24.5
	45	7.2	13.9	41.7	76.6	23.8
	50	10.0	12.0	46.7	84.7	22.9
	55	12.8	10.0	52.0	93.3	22.0
	60	15.6	7.7	57.7	102.5	21.0
	65	18.3	5.3	63.7	112.2	19.9
	70	21.1	2.6	70.1	122.5	21.1
	75	23.9	0.1	76.9	133.5	21.3
	80	26.7	1.6	84.1	145.0	20.6
	85	29.4	3.2	91.7	157.3	14.3
	90	32.2	5.3	116.9	197.9	8.6
	95	35.0	8.9	111.1	213.0	6.4
	100	37.8	12.6	136.0	228.7	4.0
	110	40.6	15.9	146.3	245.3	43.3
	115	43.3	18.1	183.7	262.6	1.4
	120	46.1	21.3	188.4	280.7	48.9
	125	48.9	24.3	180.2	299.3	54.4

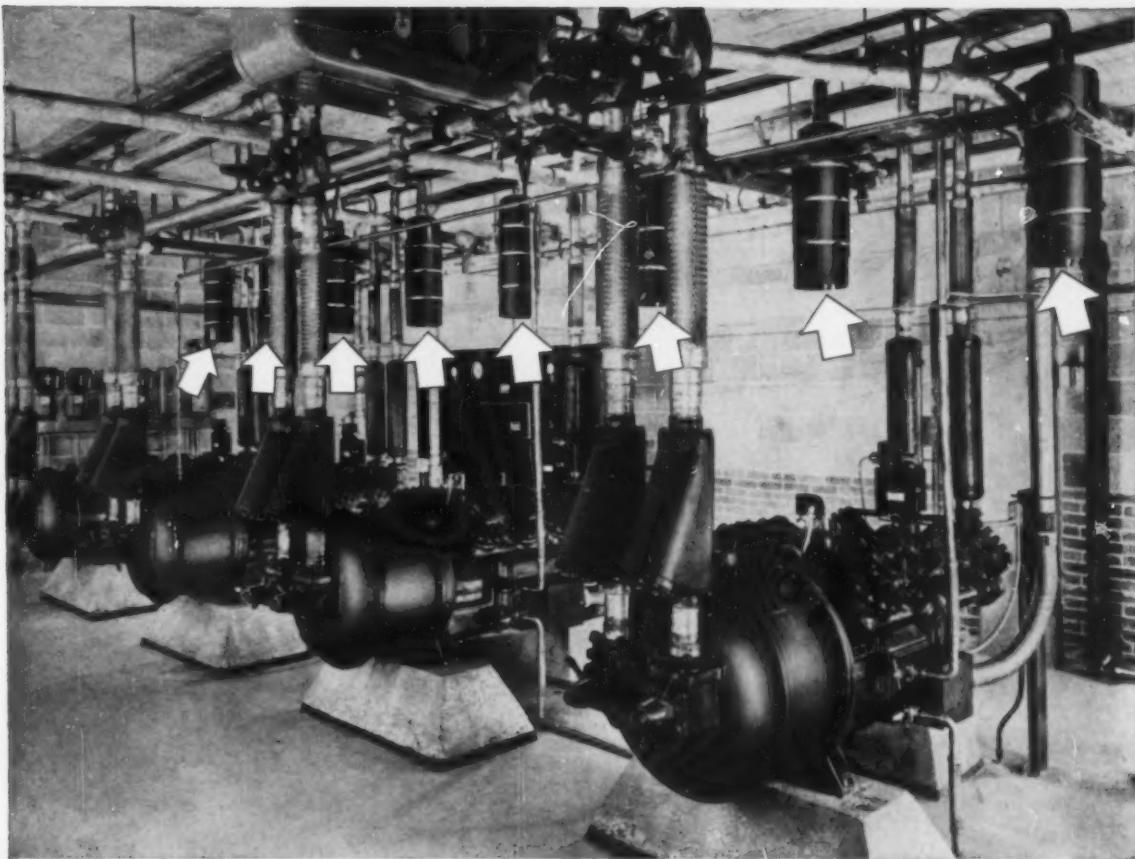
For further information, write or phone

GENETRON DEPARTMENT GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 East 20th Street, New York 6, N. Y.





Temprite Oil Separators maintain high efficiency of air conditioning system at Denver Post!

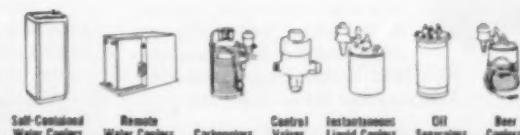
Keep oil away from the low side and in the compressor where it belongs! Lower temperatures are then easily reached, the compressor operates on minimum time only, and the crankcase oil level remains constant. The refrigerant remains at its true boiling point—heat transfer is increased 15% to 20%—and the expansion valve operates more efficiently, free from oil, dirt and corrosion. Do it all with a Temprite Oil Separator.

The Denver Post air conditioning system, installed by the T. C. Alexander Company of Denver, has been in operation for 3½ years, performing at very high over-all efficiency—thanks, in large measure, to eight Temprite Oil Separators (two to each 100 ton machine).



Temprite Oil Separators are available in sizes from 1/6 to 150 tons.

Temprite



PRODUCTS CORPORATION • BIRMINGHAM, MICHIGAN

Circle No. 31 on Reader Service Card

← Circle No. 30 on Reader Service Card

TEMPRITE PRODUCTS CORP.
P.O. Box 72-8, Birmingham, Michigan

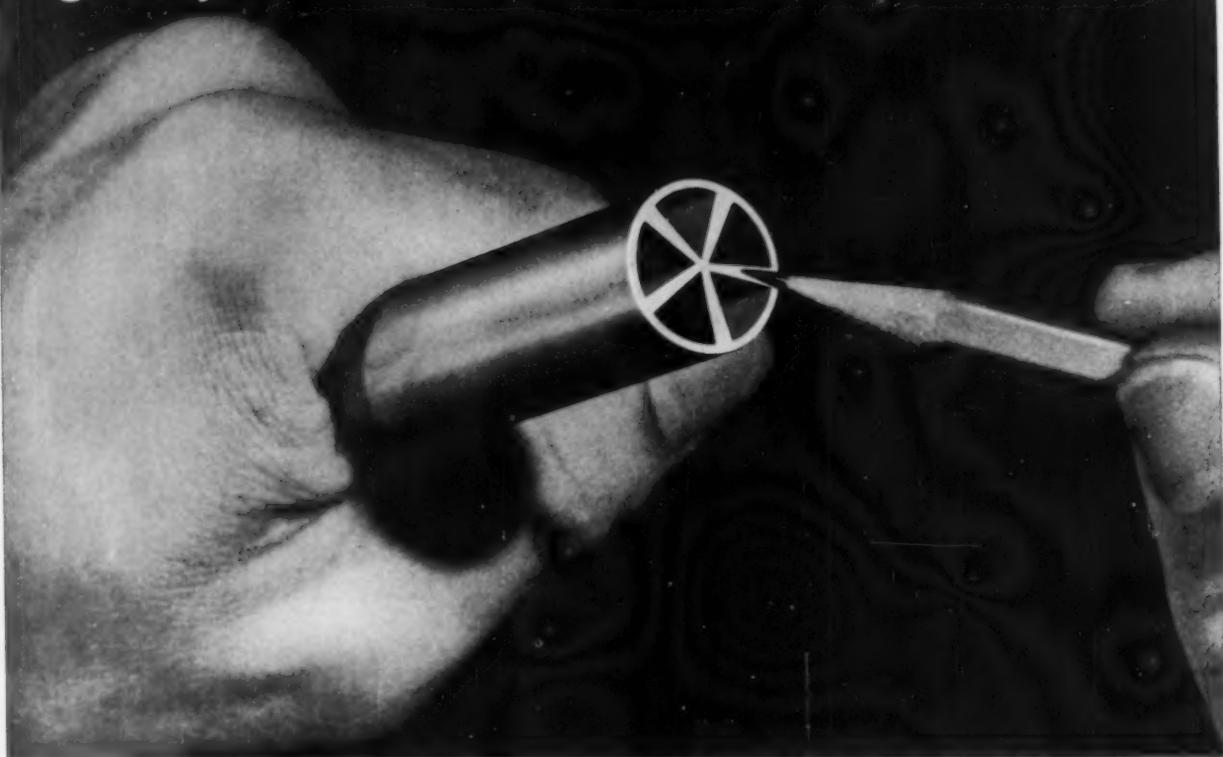
Please send me complete data on Temprite Oil Separators
 Ask your representative to call

Name _____

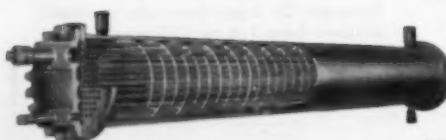
Address _____ Zone _____

City _____ State _____

This STAR FEATURE of the new gives you a SMALLER, LIGHTER, MORE EFFICIENT



*25% more cooling
capacity per
cubic foot*



Be sure to visit us at Booth 423-424,
9th Exposition Air-Conditioning and
Refrigeration Industry, Atlantic City.

After years of research and testing, Acme announces a new and important advancement — the first real innovation in direct expansion liquid chiller design since Acme's introduction of the original Dry-Ex in 1937. A new copper tubing with star-shaped aluminum insert* more than doubles the effective heat transfer surfaces between water and refrigerant. This makes the new Dry-Ex the first liquid chiller designed specifically for today's refrigerants. Combined with all the proved advantages of Acme's thru-tube construction, the star-insert tubing makes the new Dry-Ex smaller and lighter, with 25% more cooling capacity per cubic foot than ever before possible.

Acme's new aluminum insert provides clear passages for the flow of refrigerant so that the pressure drop is minimized. Imbedded in the walls of the tubes by a cold-drawing process, the aluminum establishes molecular contact with the copper for perfect heat conductivity.

Whether it's an air conditioning or a process chilling application, the new Dry-Ex will allow you to build a more compact system — one that is economical to install and operate. Dependability is assured. The new Dry-Ex incorporates all the proven construction features that have made the Dry-Ex the leading product in its field since originated by Acme in 1937.

* Patent applied for.

ACME INDUSTRIES, INC.

JACKSON, MICHIGAN

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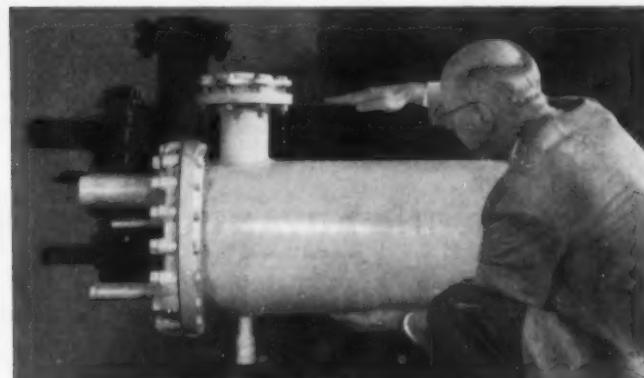
NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

Acme DRY-EX® LIQUID CHILLER



PROVEN THRU-TUBE EFFICIENCY MAINTAINED

Acme's star-shaped aluminum insert tubes of the new Dry-Ex extend straight through to multi-pass heads at each end. No bends, no soldered joints — no leaks! High refrigerant velocity is maintained and controlled to achieve greater chiller efficiency, lower pressure drop and more positive oil return than is possible with any other construction.

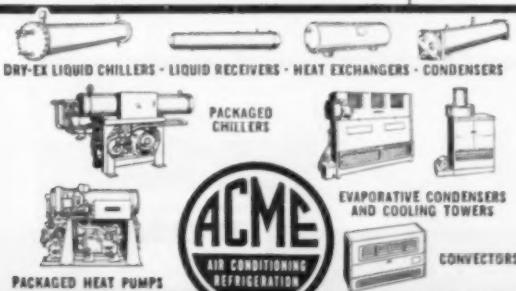


CHILLER SIZE AND WEIGHT REDUCED SIGNIFICANTLY

Diagram shows typical reduction in chiller diameter made possible by the greater heat-transfer capacity of Acme's new Dry-Ex. Because of their smaller size, these chillers fit into closer spaces, are easier for the contractor to handle and install. Reduced weight saves freight costs and smaller cubic content of refrigerant and water means a smaller refrigerant charge, less load on floors and mounting structures.

NEW DRY-EX CATALOG is packed with useful information, contains new selection procedures to simplify your engineering.

SEND COUPON BELOW TODAY



ACME INDUSTRIES, INC.
Jackson, Michigan

Send me the complete new catalog on
Dry-Ex liquid chillers.

Name..... Title.....

Address.....

City..... Zone.....

State.....



Manufacturers of Quality Air Conditioning and Refrigeration Equipment since 1919

Defrost Problems? HERE IS THE ANSWER!...

CHECK THE ADVANTAGES OF THE *Heat-Cel*^{*} SYSTEM

- Heat for re-evaporation supplied by low wattage, long life ELECTRIC HEATER.
- Positive, consistent, economical.
- Performs in any ambient, regardless of location or season.
- Independent of compressor operating time or type (air or water cooled).
- Solution temperature automatically maintained by thermostat.
- Heater replaceable in the field.
- Adjustable for individual operating conditions.
- No special controls needed for winter-time operation.
- Higher wattage elements available for extreme conditions.
- Patented DOLE VACUUM principle insures faster heat transfer for quicker defrosting . . . convenient "plate" design allows flat-against-wall mounting.

Defrosting "Kit" includes *Heat-Cel* and Accessory Package containing all necessary controls

Write for Engineering Catalog DE.

* Approved by Underwriters Laboratories

DOLE REFRIGERATING COMPANY

5942 NORTH PULASKI ROAD, CHICAGO 30, ILLINOIS
103 PARK AVENUE, NEW YORK 17, N.Y.

In Canada: Dole Refrigerating Products Limited, 44 Elgin Street, Brantford, Ontario



Circle No. 33 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

READING "LEKTROSEAL" COPPER REFRIGERATION TUBE

**FIRST STEP in a
Quality Installation—**



Reading
Display at
Booths #203 & #204
Nov. 28 to Dec. 1,
Convention Hall,
Atlantic City, N. J.



Sold Through Wholesalers Only

Soft temper for easier forming . . . dehydrated — with crimped ends to seal out all moisture and dirt . . . and keep the inside surface absolutely clean. Comes in handy 50-foot coil packed in its own convenient protective carton, clearly labeled for easy identification. To be sure of the job — be sure to specify Reading.



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Valves are Superior for Ammonia, Freon and other High-Pressure Services



Catalog O Gives Sizes, Symbol Numbers, Dimensions and Weights of Valves, Fittings and Accessories. Get Your Copy Now.

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DEPENDABLE REFRIGERATION SINCE 1882

FRICK Co.

WAYNESBORO, PENNA. U.S.A.

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NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

When you buy an evaporative condenser...

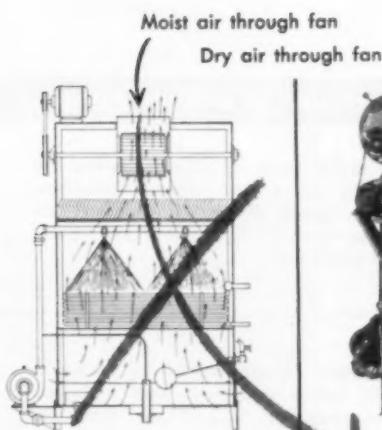


**Think
YEARS AHEAD**

If you don't think years ahead you may find yourself burdened with costly problems. For example: corrosion and scaling, deteriorated fans, exorbitant repair bills, days of down-time all caused by moist air continually pulled through the fan section. The way to avoid these future problems is to specify dependable "Dri-Fan" by RECOLD. "Dri-Fan" is the Evaporative Condenser that pushes *dry air* through the fan section, eliminates corrosion problems, gives you long trouble-free performance. Check the exclusive, patented RECOLD features and see why more and more the order is for "Dri-Fan." Available for Freon 12, Freon 22, and ammonia in capacities from 5 to 150 tons, single or multiple circuit installations.

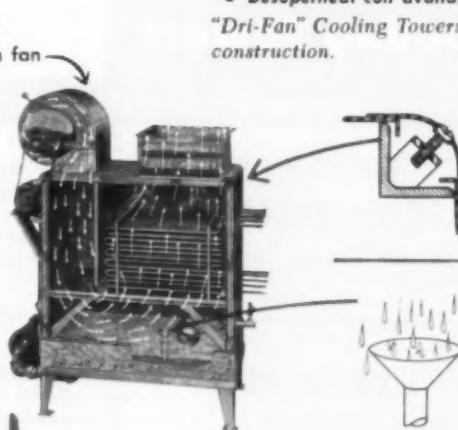
- Engineered for quiet operation • Galvanized construction
- Desuperheat coil available • Easy to install and service

"Dri-Fan" Cooling Towers provide the same advantageous construction.



THE OLD WAY

Highly saturated air is constantly pulled through the vulnerable fan section causing corrosion, scaling, deterioration of the fan, shaft and bearings.



THE RECOLD WAY

**"DRI-FAN" ELIMINATES
CORROSION PROBLEMS**

RECOLD uses the forced draft principle to push dry air through the condenser. The fan operates in the dry air stream.

Think about serviceability—
RECOLD advanced cabinet design provides water-tight panels that are quickly and easily removed.

Think about bleed control—
RECOLD "funnel" design assures positive, non-clogging action with scale control and minimum water loss.



Think about accessibility—
Patented access door slides easily, provides water-tight seal without use of gaskets or fasteners.

Recold

"DRI-FAN" Trade Mark registered



For illustrated folder on RECOLD "DRI-FAN" Evaporative Condensers or
Cooling Towers, write to your Recold distributor or to...

REFRIGERATION ENGINEERING, INC.

Dept. L2, 7250 East Slauson Avenue, Los Angeles 22, California

Circle No. 28 on Reader Service Card

**NOW
THERE IS
ONE
ANSWER
TO ANY
COOLING TOWER
NEED . . .**

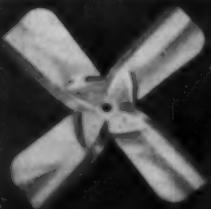
DOVER

**A Complete Line of
Packaged Cooling Towers**

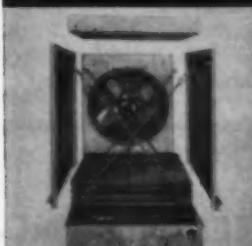
THESE IMPORTANT EXTRAS COST YOU NOTHING IN A DOVER TOWER



**HOT-DIP
GALVANIZING—
After Fabrication**



**STAINLESS
STEEL
FAN BLADES**



**DOVER
"TAKE APART"
FEATURE**

Whatever your cooling tower requirements there's one answer — one simple solution — a Dover packaged cooling tower.

Now, Dover has a complete line of quality cooling towers to meet your needs for any type of installation.

What's more, you know that you can depend on Dover for the finest quality, the finest workmanship, the greatest performance. And what about the price? You'll find that Dover towers are priced among the lowest in the industry; yet when you consider the extra features you get only in a Dover tower, they are actually less expensive than any other.

All metal parts of Dover towers are hot-dip galvanized after fabrication. This rugged finish is standard on Dover towers . . . eliminates costly rust problems.

In every Dover horizontal induced draft tower you will find stainless steel propeller fans. These fans are built to last. This distinctive Dover feature means that troublesome fan failures are eliminated.

Because Dover towers are built on an exclusive bolt-free construction principle, your Dover tower can be rapidly disassembled and assembled again right on the job where "hard to reach" basement or roof-top installations are desirable. Adjustable tie-rods are the secret of this Dover feature.

DOVER . . . AMERICA'S NEW STANDARD FOR PACKAGED COOLING TOWERS

Circle No. 37 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

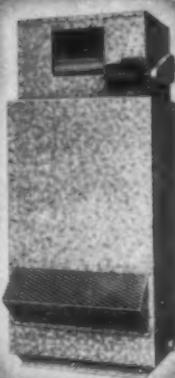
DOVER

to bring you
A COMPLETE LINE OF QUALITY COOLING TOWERS
 at A COMPETITIVE PRICE!

Throw
 the Book
 Away!



VERTICAL INDUCED-DRAFT TOWER with Centrifugal Blower

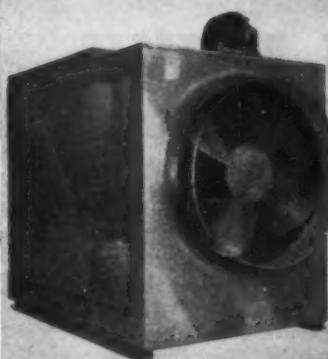


The ideal tower for those installations where space is a factor. Completely flexible and easily adaptable in its use, this tower can be used anywhere in the building. Placed next to the condenser, piping is held to a minimum. Super-quiet operation means it can be placed in a room close to workers without annoyance. When used with duct work, it will remove warm, objectionable air from the building and, at the same time, ventilate the room that it is in. Because air intake and outlet are on the same side, this tower can be placed flush with the wall.

You'll find these additional features only on a Dover tower — exclusive spray distribution system to every inch of deck surface for greater efficiency — life-time decking of asbestos fibre-cement board — and, of course, Dover hot-dip galvanizing — easy maintenance of blower and drive assembly — rugged, bolt-free construction.

This Series V tower comes in capacities from 5 to 100 tons.

HORIZONTAL INDUCED-DRAFT TOWER with Propeller Fan



This Series CF tower has become the new standard of the industry. Its neat, modern design is an integral part of the rugged long-life construction. Designed for trouble-free performance, this Dover packaged tower will serve any needs from 2 to 100 tons capacity at an extremely low operating cost. Completely hot-dip galvanized, it is ideally suited for small air conditioning and refrigeration installations and for jacket water or air compressor cooling.

AT LAST! AN ALL-STEEL NATURAL DRAFT TOWER



Here at last is the ideal natural draft tower — all steel to meet the strictest municipal fire codes — hot-dip galvanized throughout for long life and attractive roof-top appearance. A virtually bolt-free in design for rapid field assembly, new-type plastic spray nozzles provide better performance over conventional design. More good news! Dover Series K all-steel towers cost little more than wood towers and are available in sizes from 3 to 100 tons. Also available in Series S—the same tower but with all-heart redwood louvers and corner posts.

FREE! LITERATURE ON THE DOVER LINE

Have some questions about these Dover towers? We have some answers that you're sure to like—and they are yours absolutely free and without any obligation. We'd like to send you full information on how Dover can be the answer to your cooling tower needs. Won't you take us up on this offer?

HERE ARE JUST A FEW OF THE MANY SATISFIED DOVER USERS

City & County of Denver, Colo. • Combustionair Corp. • Darby Corp. • Gas Service Co. • B. F. Goodrich Co. • International Nickel Co. • The Krueger Co. • U. S. Naval Station, San Juan, Puerto Rico • Pittsburgh & West Virginia R.R. Co. • Pacific Gas & Electric Co. • State of California • Shaw Air Force Base • Carrier Corp. • Howard Johnson Motels • Charleston Air Force Base • Milgram Stoves.

SALES OFFICES IN PRINCIPAL CITIES FROM COAST TO COAST

WHY WAIT? LET DOVER BE THE ANSWER TO YOUR COOLING TOWER NEEDS!
 MAIL THIS COUPON TODAY!

DOVER MANUFACTURING COMPANY

Dept. 101, 3117 Weatherford Avenue

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Please send me more information on Dover Packaged

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DOVER . . . AMERICA'S NEW STANDARD FOR PACKAGED COOLING TOWERS

Circle No. 37 on Reader Service Card

& AIR CONDITIONING • NOVEMBER, 1955

NOW...
you can avoid
breakdowns!



PENN CONTROL AUTOMATICALLY PROTECTS PRESSURE-LUBRICATED COMPRESSORS

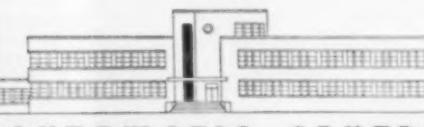
Two destructive conditions *can* develop even in the best pressure-lubricated refrigeration compressors. First, at the start of the compressor, oil pressure may fail to build up to the proper point within a safe time period. Second, during the compressor's running cycle, oil pressure can drop below a safe minimum.

When either of these conditions occurs, seals and bearings are in danger. To avoid such damage and

loss of operating time, use the *Penn Series 275 Oil Protection Control* with built-in *Time Delay Switch*! Then, anytime subnormal oil pressure develops, this *Penn* safety control automatically stops the compressor from operating beyond the predetermined safe period.

For complete information on this *low-cost protection*, ask your wholesaler, compressor manufacturer or write **Penn Controls, Inc., Goshen, Ind.**

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, GAS APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

Circle No. 38 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

IBNU'S TRENDS · OPINIONS · REPORTS

AGREEMENT ON POWER FACTORS for room air conditioners has been reached between representatives of the nation's electric power companies and ARI. It was agreed that beginning with 1956 models, room air conditioners of $\frac{3}{4}$ hp and larger must have not less than 85% power factor. Units of $\frac{1}{2}$ hp must have not less than 80% power factor; those of $\frac{1}{3}$ hp not less than 75% power factor.

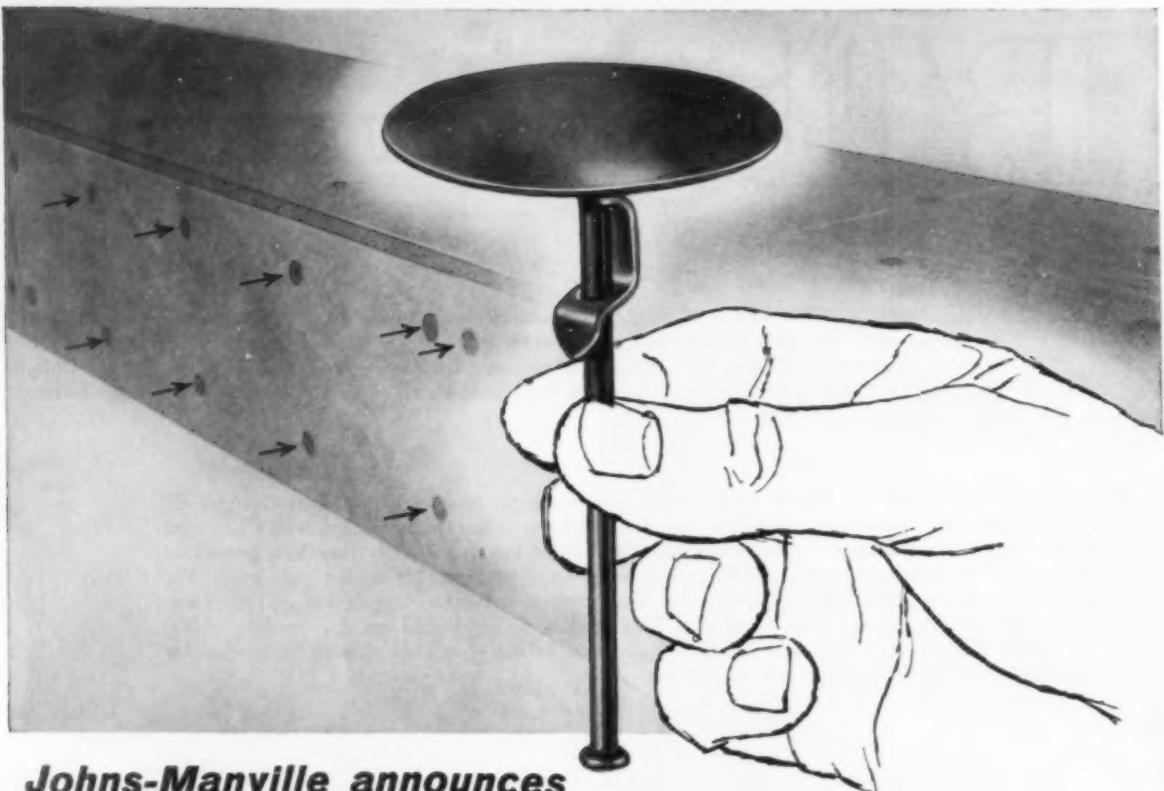
DESIGN OF FUTURE OFFICE BUILDINGS, as well as their shape, may be largely determined by air conditioning expense factors, according to a special study by architect Henry Wright, which appeared in the July issue of *Architectural Forum*. The window-wall office building already may have passed its popularity peak, he said, to be succeeded by new structures with considerably smaller glass areas. For every 100 sq.ft. of unshaded, unfavorably oriented glass used in a tall building in most parts of the U.S., an additional ton of air conditioning must be provided. Wright points out that the kind of design demanded by today's level of building technology must be the expression of some fairly complex mathematics rather than merely an esthetic credo.

STARTLING RESULT of tests conducted by Swift & Co. to find a safe way to cool cooked meat was that the practice of holding such meats at room temperatures long enough to thoroughly cool them was potentially dangerous. Findings show that the best method of handling cooked meats, to prevent the development of micro-organisms, is to refrigerate them immediately, even though most meats may be safely left at room temperature for two hours.

UPSURGE OF RELIGIOUS INTEREST in the U.S. is reflected by current activity in church construction which is said to be running at the highest rate in history. In addition, some 70,000 American churches and synagogues will be constructed or substantially altered during the next 10 years at a cost of nearly six billion dollars, according to a recent estimate made by George Cline Smith, economist for F. W. Dodge Corp. With the current upswing in interest in church air conditioning, these figures point up a large and growing market for air conditioning dealers and contractors.

PSYCHOLOGICAL RESEARCHERS were somewhat startled recently when a group of women, living in air conditioned homes in the Austin, Texas "Air Conditioned Village", reported that their husbands had miraculously acquired "better dispositions" under the influence of air conditioning, even though the husbands were away from home most of the day. Other statistical data collected in the village, which was built in 1954 to test air conditioning systems under actual living conditions, tended to support their opinion. The data, however, even more strongly indicated that the women themselves, as a result of enjoying the comforts of air conditioning all day, were able to look upon their spouses with a bit more than their usual benevolence.

A COOL PROFIT of 200% on a small investment can be realized by poultrymen who refrigerate eggs from the time they are gathered until sold, according to an article in the September issue of *Farm Journal*. Tests run by Dr. William J. Stadelman, Washington State College poultry scientist show that it costs about $\frac{1}{2}$ cent to refrigerate a dozen eggs, while the return is almost $1\frac{1}{2}$ cents more per dozen because the eggs grade higher. Conclusion is that the extra income will pay for the refrigeration unit within a year or two.



Johns-Manville announces

a *Flush Clip*

for impaled insulation



Another revolutionary development
introduced by Johns-Manville

Now . . . you can insure a smooth and unbroken finish on air conditioning ducts. For this new *Flush Clip*, developed and produced by the Graham Manufacturing Corporation of Royal Oak, Mich., firmly secures impaled insulation without sacrificing eye appeal or impermeability of vapor barrier.

Plant personnel will appreciate the neat, smooth appearance unbroken by ugly protuberances. The Graham® *Flush Clip* also provides an excellent surface for decorative or identification painting. Insulation engineers will be able to furnish a snugger fitting, more efficient job with an unbroken vapor

barrier that is easily applied. Installation crews will find their work simplified and speeded—with no trimming and cutting required—and a greatly reduced injury hazard from sharp, jagged projections.

Johns-Manville's Industrial Contract Department has worked closely with the Graham Manufacturing Corporation in field-testing the Graham *Flush Clip* on industrial installations. Used in conjunction with the Graham Insul-Pin System, it has been proven to operate ideally with J-M Spintex Insulation, plain and faced. For more information and samples, contact your nearest J-M Insulation Contractor. Or write Johns-Manville, Box 60, New York 16, New York. In Canada, Port Credit, Ontario.



JOHNS-MANVILLE *first in* **INSULATION**
MATERIALS • ENGINEERING • APPLICATION

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REFRIGERATION PRODUCTS & COMPONENTS

51 Commercial Refrigerators	67 Electric Motors and Accessories
54 Specialty Refrigeration Equipment	68 Valves and Fittings
61 Insulation and Insulating Materials	74 Controls and Instruments
63 Heat Exchange Equipment	78 Installation and Service Materials
66 Compressors . . Pumps . . Condensing Units	82 Tools and Shop Equipment

Meet us at the ARI show and see Larkin's new line



SEEN WITH MODEL of Larkin Coil's exhibit are, left to right, Charlie Schreeder, Roy Shrader, O. M. Sims, Sydney Hughes, Jim Palmer, Pete Rose and Dan Lee. All of them will be at the ARI Show — Booths 407 and 408 — to give you full facts about the Larkin line for 1956.



You're in for a real surprise when you come by the Larkin Coils booth at the big show in Atlantic City. New models of many Larkin products will be shown for the first time. Get the inside story on the big engineering improvements—see why, more than ever, Larkin is the line for you.



LARKIN COILS

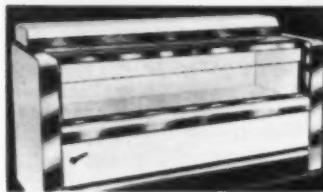
519 MEMPHIS DRIVE, S.E. • P. O. BOX 7400, ATLANTA 3, GEORGIA • MONEY 4-3171

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NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

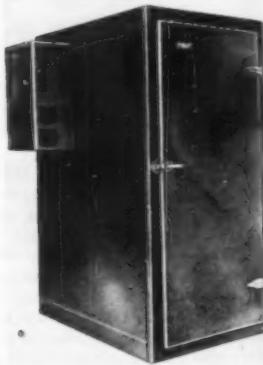
COMMERCIAL REFRIGERATORS

FROZEN FOOD MERCHANTISER—*Coldin Cabinet Co., New York, N.Y.* Model ADF-84 self-contained, open type frozen food case that employs electric heater type of automatic defrost with electric clock mechanism. Cabinet maintains tem-



perature of 0 to -5 F, is of all-steel welded construction with white enamel ends and back top. Has quadruple glazed display front, porcelain and stainless steel exterior front, and is available in 7' length.

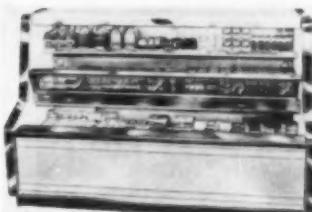
REACH OR WALK-IN—*La Crosse Cooler Co., La Crosse, Wis.* "Kool-Kloset" combination refrigerator in two sizes that are high enough to walk in, and which have provisions for shelving for reach-in usage. Large size has $\frac{1}{3}$ -hp refrigeration



unit and is 72" high, 62" wide, and 48" deep. Other size has $\frac{1}{4}$ hp unit and is 72" high, 34" wide, and 48" deep. Exterior is grey baked enamel

with cadmium plated hardware. Interior is zinc-grip metal. Insulation is 3" spun glass.

DOUBLE DECK FREEZERS—*Fo-gel Refrigerator Co., Philadelphia, Pa.* New line of frozen food display cases that are designed to stock and display twice the capacity of standard models in the same floor space. Units feature three self-service display shelves within cabinet proper.

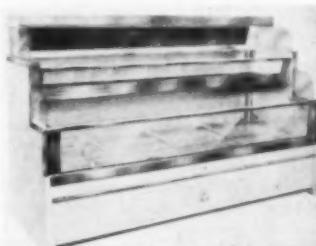


Lower two shelves are for frozen foods, and upper shelf is for items not requiring low temperature refrigeration.

REFRIGERATOR-FREEZER—*United Refrigerator Co., Hudson, Wis.* Large capacity "Refrig-N-Freez" combination unit features 7 cu. ft. waste-high refrigerator at top, and a 350 lb. freezer at bottom. Each compartment has a separate door with additional built-in storage space for small packages, cans and bottles, as well as independent temperature controls.

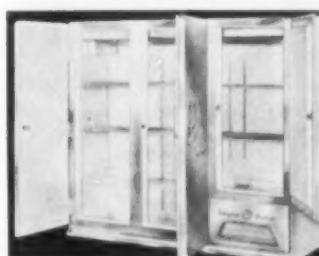
SELF-SERVICE UNITS—*McCray Refrigerator Co., Inc., Kendallville, Ind.* Completely new line of self-service food merchandising equipment includes low temperature and normal temperature cases. Units incorporate many new appearance, product display, and refrigeration features.

PRODUCE MERCHANTISER—*Penguin Sales, Plymouth, Mich.* Wall-type display cooler for fruits and vegetables with new humidifying action that reduces spraying problem. Has top shelf for special display and optional bottom bin for storage of dry items. Easily re-



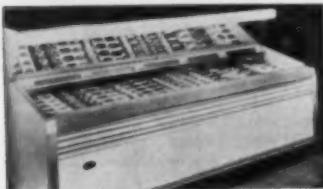
moved, rust-proof racks can be sloped to front for maximum display or to rear for maximum storage. Unit is 88" long, 44½" high, and 34" deep.

STAINLESS REACH-INS—*Jordon Refrigerator Co., Philadelphia, Pa.* "Style-Line" series includes a reach-in freezer, combination refrigerator-freezer, and two beverage coolers in seven sizes. Units have leather-grained aluminum interiors, welded heavy-gauge steel construction, Fi-



berglas insulation, and stainless steel or white enamel exteriors. Parallel line features five models of reach-ins for use with remote compressors and includes an upright freezer and combination refrigerator-freezer, as well as two beverage coolers.

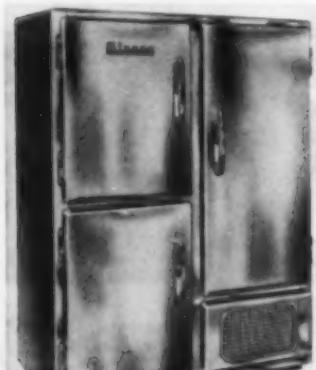
FROZEN FOOD DISPLAY CASES—*Sherer-Gillett Co., Marshall, Mich.* Model 3810C, open-type "Lo-Front" display case with patented recirculated air feature, and companion Model 3810IC especially adapted for ice cream display. Both models manufactured in 6' and 10' lengths



and are available in four pastel colors and standard white exterior finish. Fixed or sliding mirror superstructure with fluorescent lights optional equipment for either unit.

SECTIONAL WALK-INS—*Loudon Mfg. & Sales, Inc., Minneapolis, Minn.* Steelclad walk-in cooler and companion wood-built models available in wide range of sizes permit addition of other sections later. Prefabricated, these models are shipped knocked down and have lifetime treated framework, 3½" Fiberglas insulation, and plug-in panels. Exterior finish is baked white enamel; interior is 20-gauge galvanized. Other units in line include deluxe and super delux wood walk-ins, accessory plug-in panel units in either 110 or 220-volts, and self-contained low temperature panel units with automatic hot gas defrosting.

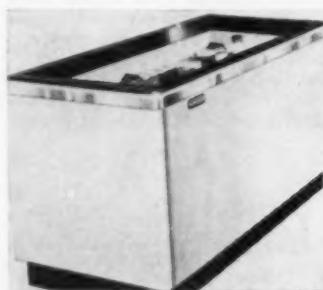
REACH-IN REFRIGERATORS—*Glenco Refrigeration Corp., Philadelphia, Pa.* New self-contained line



includes freezers, two-temperature cabinets, and bottle coolers. Thicker-than-average doors contain 4" of in-

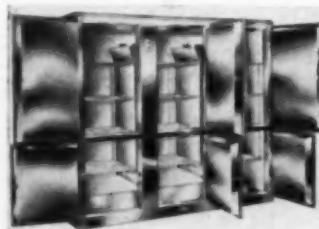
sulation, have spring-loaded latches and non-sweat type mullions. Units have stainless steel exteriors and aluminum interiors. Models are available with capacities ranging from 15 to 90 cu. ft.

STORE DISPLAY COOLER—*Punxsutawney Co., Punxsutawney, Pa.* Model OD64-S open-top cooler for merchandising foods and beverages. Provides automatic defrosting and automatic disposal of condensate; maintains adjustable temperatures from 30 to 45 F; is easily moved inside store, and requires no connection other than electrical outlet. Unit is 34½" high, 30" wide, and 64" long, and is avail-



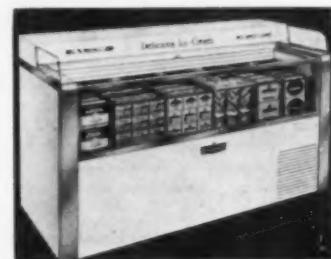
able with either baked-on white enamel or stainless steel sides. Cooling system uses heavy-duty commercial-type coils, and forced air principle.

STAINLESS REACH-INS—*Tyler Refrigeration Corp., Niles, Mich.* Line of six remote and self-contained



refrigerators designed to meet heavy food requirements of restaurants, hotels, taverns, bakeries and the like. Models are of welded-steel construction with minimum of 3" insulation, and are equipped with heavy-duty coils and triple glazed glass doors in a wide variety of door arrangements and types. Units are also provided with chrome hardware, rustless tracks or sliding doors, stainless steel exteriors, and aluminum interiors.

ICE CREAM CABINETS—*Schaefer, Inc., Minneapolis, Minn.* Line of three glass-front, open-top merchandise cabinets with fluorescent lighted superstructure. All three models measure 30½" wide and 43 9/16" high. Model GF-111 holds 476 pint-size ice cream packages and is 49" wide. Model GF-154 holds 664 pint packages and is 76-1/16" wide.



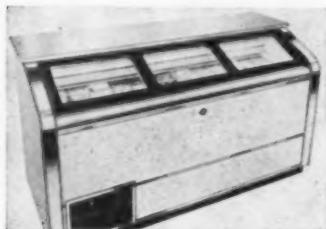
Model GF-247 holds 1020 pint packages and is 85 3/8" long. Each cabinet may be either a low (one-shelf) or high (two-shelf) type.

DISPLAY-STORAGE LINE—*Penguin Corp., Livonia, Mich.* Refrigerated display and storage cabinet series includes two self-contained models, UG-40-S (40 cu. ft.) and UG-70-S (70 cu. ft.) of all-steel, sliding door construction for storage of bev-



erages, dairy foods or flowers. Model UG-40-S has eight adjustable shelf sections, and 1/3 hp condensing unit. Merchandising cabinet (Model G-5800-GW) provides 16 cu. ft. of storage space, 24 sq. ft. of shelf area, and is available with either electric or hot gas self-defrosting units. Models 5400-GA and 5800-GA aisle display cabinets also have automatic defrosting and are equipped with glass or solid front panels. Dairy products merchandiser (5800-DW) has two shelves refrigerated for full 77" length and provides non-refrigerated display on two additional shelves.

ANGLE FREEZER—*Bally Case and Cooler Co., Bally, Pa.* Automatic defrosting case for ice cream or frozen foods in two sizes. Unit maintains temperature of 0 to -5 F. Has glass



doors which slide into Formica work top, porcelain exterior and stainless steel lined interior. Large 8' model is 40" high, has $\frac{3}{4}$ -hp unit, and 23 cu. ft. capacity. Smaller 6' model is 40" high, has $\frac{1}{2}$ -hp unit, and provides 17 cu. ft. capacity.

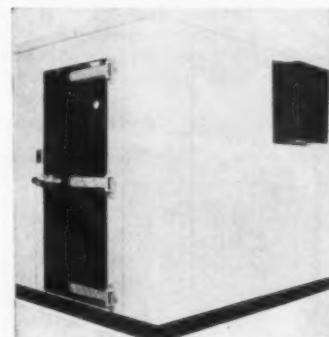
GLASS DOOR FREEZERS—*Sub-Zero Freezer Co. Inc., Madison, Wis.* Line of frozen food and ice cream cabinets utilizing Thermopane glass doors with built-in heat wire to minimize condensation and fogging. Valves located to permit easy field servicing from front of cabinet and design achieves large capacity in minimum floor space. Models range from 16 to 32 cu. ft.; have baked enamel on aluminum exteriors, and 4" Fiberglas insulation.

ICE CREAM DISPLAY—*Bailey & Perkins, Freez-Rite Div., Utica, Mich.* New cabinet is said to keep ice cream in prime condition by maintaining even sub-zero temperature. Defrosting occurs in entire



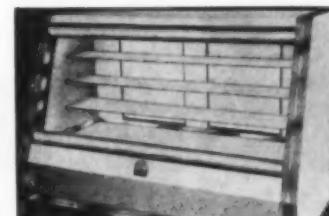
coil simultaneously due to new design of heating mechanism. System uses no fans, expansion valves or solenoid valves. Capillary refrigerant control. Cabinet is said to be frost-free at all times. Welded aluminum liner is leak-proof. Available in two models: 79" length with 800 pint capacity and 56" model with 517 pint capacity.

PRE-FAB WALK-IN—*Erickson Industries, Inc., Roberts, Wis.* Various sizes of "Chill-Air" coolers are obtained through use of 24, 36, and 48" vertical side wall sections. Construction is all metal on tongue and groove Douglas fir framing, with Fiberglas insulation compressed to $3\frac{1}{2}$ " thick. Double rubber gasket is used between



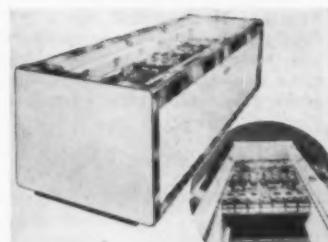
sections. Exterior is white baked-on enamel, with cadmium or chrome plated hardware. Interior is galvanized.

FREEZER DISPLAY CASE—*Frigid Igloo Mfg. Co., Yonkers, N.Y.* Completely restyled commercial display refrigerator line features "eye-wide"



product visibility and hot gas automatic defrost. Cases measure from 38" to 54" high and are equipped with indirect fluorescent lighting placed outside unit, under chrome framing sills. "Lacoa" exterior and interior finish available in white and colors, and a special wood grain finish is also provided.

FROZEN FOOD CASES—*Warren Co. Inc., Atlanta, Ga.* Location of coil in bottom of "Island Master Merchandiser" provides accommodation for seven frozen food packages from front to back. Units have white acid-resistant porcelain interiors; exteriors finished in white or color; sectional, removable, and adjustable steel-wire shelves. All sizes and models are equipped with stainless steel moldings and shopping



rails, thermostatic temperature controls, and automatic electric defrosting systems.

SELF-SERVICE DAIRY CASE—*Federal Refrigerator Mfg. Co., Waukesha, Wis.* Self-contained unit provides super-lighted full visibility and cascading cold circulation on both shelves. Offers 13.9 sq. ft. of refrigerated display area and 2.55 sq. ft. of non-refrigerated shelf display.



Self-contained $\frac{1}{3}$ -hp refrigeration unit plugs into any power outlet for versatility in spot display.

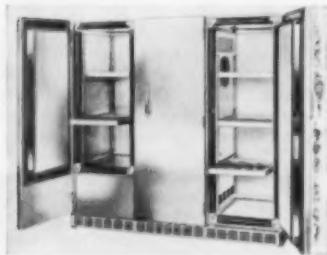
ICE CREAM CABINETS—*Refrigeration Div., Savage Arms Corp., Utica, N.Y.* Two self-contained cabinets featuring circulated air cooling, automatic defrosting, and illuminated superstructures for merch-



andising items related to those stored in cabinets. Model AD-745-LB has a 6" superstructure and is 47 $\frac{1}{2}$ " high. Model AD-745-RI is 58 $\frac{1}{2}$ " high and has a 17" superstructure. Both are 74 $\frac{1}{2}$ " long, 35" wide and have identical capacities of 652 Philadelphia

pints of ice cream. Units are equipped with 1-hp compressors, with slide-out base, have semi-hermetic units which require no drains, and are finished in white enamel.

DEFROSTING FREEZER—*Victory Metal Mfg. Co., Plymouth Meeting, Pa.* Model FA-60-S self-contained freezer with automatic hot gas defrosting system and full length doors to permit utilization of entire storage space. Interiors adjust on 1" centers to take any combination of pan slides, shelves or drawers. Of all-metal construction with stainless



steel, aluminum or baked white enamel finish, unit measures 75-3/8" wide, 72-3/4" high, and 33-1/2" deep, exclusive of hardware. Has 3/4-hp hermetically sealed unit and is available in remote and pass-through models from 15 to 90 cubic feet.

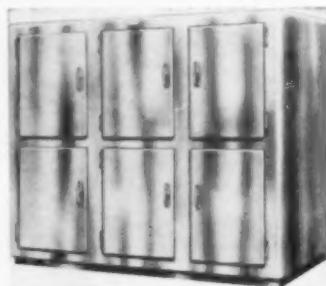
FROZEN FOOD CASES—*Howard Refrigerator Co., Philadelphia, Pa.* Model OF-16 (16 cu. ft.) and OG-22 (22 cu. ft.) automatic defrosting self-service cases for frozen foods and ice cream. System provides proper temperatures at all levels without use of blowers. Hot gas defrost cycle requires no outside drains. Units have adjustable divider racks and fluorescent lighting concealed in superstructure. Basic construction is welded steel, exterior finish is baked-on enamel, and interior is aluminum



lined. Model OF-16 is 72" long, 49" high, 32" deep, and has 3/4-hp compressor. Model OF-22 is 96" long, 49" high, 32" deep, and has 1-hp compressor.

REACH-IN UNITS—*Stainless Food Equipment Co., Inc., Newark, N.J.* "Flex-O-Unit" stainless steel reach-

ins, dough-retarders, and freezers are included in a line of over 500 styles of special refrigeration equipment for restaurants, bars, bake-



shops and similar. Remote and self-contained models are available in a wide variety of sizes and capacities with either stainless steel or Thermopane glass doors.

ICE CREAM CASE—*National Market Equipment Co., Royal Oak, Mich.* Space-saving display case with plexiglass superstructure for visual display and prevention of pilfering. Customer service is by means of rear panel. Case has self-contained refrigerating unit for either 110 or 220-volt current, has baked enamel finish in choice of colors, and measures 27" wide, 30" deep, and 51" high.

SPECIALTY REFRIGERATION EQUIPMENT

MIDGET COOLERS—*Gloekler Refrigerator Co., Erie, Pa.* Two small, portable units, suitable for a variety of uses in places where space is limited. "Polar Midget" dairy and service bar is of all metal



construction with stainless steel front and heavy-gauge, zinc-coated sheet steel interior. Has capacity of 24.5

cu. ft., adjustable wire shelf, fiber-glas insulation, and heavy duty blower. "Polar Midget" storage cooler provides temperatures ranging from 34 to 42 F and is equipped with either self-contained or remote 1/4-hp compressor. Available in either 14.5 cu. ft. and 22.2 cu. ft. size.

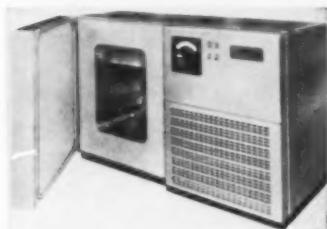
WATER COOLER BRACKET—*Cordley & Hayes, New York, N.Y.* "Cordleyrac" wall bracket, designed expressly to support Cordley water coolers off the floor in hospitals, chemical plants, food processing and bottling plants, or other places where ultra-cleanliness around water coolers is important. Made of heavy gauge steel, the device is easy to install and can be raised to any desired height.

UNDER-BAR SERVICE UNIT—*4 Brothers Refrigeration Mfg. Co., Philadelphia, Pa.* Compact Model B 4-IN-1 available in sizes from 6' to



10' long, with standard 23" depth, and 30" height to fit under any standard bar. Makes ice cubes and dry-cools bottles; has freezer or normal temperature food compartment; available with one, two, or three stainless steel sinks and swivel water faucet. Equipped with self-contained refrigeration unit, the all-purpose case is designed especially for night clubs, grille, bars, motels, and institutions.

TESTING CHAMBER—*Tenney Engineering, Inc., Union, N. J.* “Tenney-Mite” low temperature testing cabinet, for laboratories, metal treating, and similar applications, has five separate vertical and horizontal arrangements with top or front opening door, and can be mounted on swivel casters. Unit has



interior capacity of $1\frac{1}{2}$ cu. ft., and is available in temperature ranges of -40 , -100 , and -120 F. Pull-down on basic -100 F model is approximately 60 minutes, using 110-volt current.

DUAL ICE MAKER—*American Automatic Ice Machine Co., Faribault, Minn.* Both cubes and chips are produced automatically and noiselessly by this unit which utilizes no crushing mechanism and requires only 6 sq. ft. of floor space. Unit harvests ice every 30 minutes; storage bin holds 200 lbs.; daily capacity is more



than 3,700 cubes of over 6-oz. size. Machine is served by $\frac{1}{3}$ -hp motor with air-cooled condenser and measures $38\frac{3}{4}$ high, $32\frac{3}{4}$ wide, and 26 deep.

AUTOMOBILE REFRIGERATOR—*A.R.A. Mfg. Co., Fort Worth, Texas.* Compact unit operates off a car's air conditioning system, and can be easily installed below and in front of the instrument panel, on floor behind front seat, or in the trunk compartment. Has capacity of 960 cu.

in., and will hold 18 bottled drinks, 24 12-oz. cans, or an equivalent amount of food. Unit is made from zinc-coated metal and finished in baked enamel. Cooling system consists of $12\frac{1}{2}$ ' of three-eighths copper tubing covered by an expanded metal grille.

HOT AND COLD WATER COOLER—*Kelvinator Div., American Motors Corp., Detroit, Mich.* “Hot-N-Cold” water cooler dispenses hot water for instant beverages, as well as cold water. Both pressure type

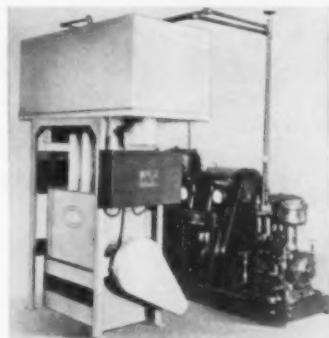


and bottle models are equipped with a newly developed automatic water heater and are available with matching dispensers for cups, spoons and packaged beverages.

DRY COOLER—*Bevco Co., St. Louis, Mo.* Model DBR is equipped with ice cuber and water faucet that may be placed in various locations; has large area for dry-cold storage; is available in 4, 6, 8, and 10' sizes, and is suitable for storage of any type beverage or dairy container. Ice cuber has capacity for 168 ice cubes in 12 trays.



ICE PRODUCER—*Frick Co., Waynesboro, Pa.* Completely automatic and portable shell-ice makers with capacities to produce from $\frac{1}{2}$



to 30 tons of ice in 24 hours. Ice is formed by freezing water as it flows over a series of vertical stainless steel tubes through which the refrigerant (either ammonia or Freon) is circulated. Reversing the refrigerant cycle releases the tubes of ice which then pass over a breaker on their way to the storage bin or room. Ice tubes are approximately 4" in diameter, with the ice itself varying from $\frac{1}{8}$ " to $\frac{1}{2}$ " thick.

CARBONATOR UNIT—*Hudson Industries, Inc., Detroit, Mich.* “Triple-Jet” motor driven pump unit, for saturating water with CO_2 gas, may be operated at peak even when water pressure is at minimum. Carbonization cylinder utilizes new type of upward triple-spray nozzle combined with the venturi principle.



BEVERAGE DISPENSER—*Carbonic Dispenser, Inc., Canfield, Ohio.* Compact “Sodamaster” units available in 2, 3, and 4 syrup-tank models equipped with “Mix-Monitor” faucets which dispense four flavors, jet

and normal soda stream, plain drinking water, and are refrigerated up to point of beverage delivery. Capacity of 4-tank model is 3,570 six oz. drinks in eight hours. Model uses $\frac{1}{2}$ -hp air or water cooled condensing unit and measures $25\frac{1}{2}$ " deep, 38" wide, and $55\frac{1}{2}$ " high including faucets.



FLAKED ICE MACHINE—American Gas Machine Co., Div. of Queen Stove Works, Inc., Albert Lea, Minn. "Scotsman Lil' Shaver" Model SF-75WS, designed especially for luncheonettes, fountains, drive-ins

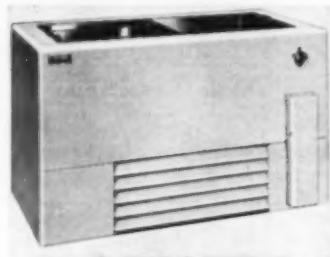


and similar establishments. Completely automatic and easy to install, unit has daily capacity of 100-200 lbs. of flaked ice and is equipped with a 100 lb. storage bin.

ICE MAKING MACHINE—Emporium Industries, Inc., Emporium, Pa. Compact "Ez-Ice" unit requires less than one square yard of floor space, fits under counters, and produces up to 350 lbs. of cracked ice, $\frac{1}{8}$ " to

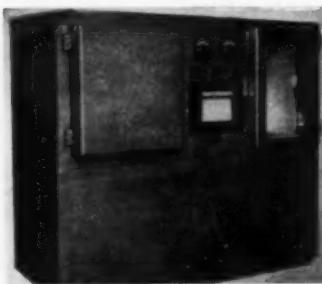
$\frac{1}{4}$ " thick, per day. The all-in-one machine has a self-contained bin, can be obtained with either 115 or 230 V, air cooled or water cooled refrigeration unit, and measures $38\frac{1}{2}$ " high, 28" wide, and 40" deep. Storage bin, doors and all metal parts that come in contact with ice are of stainless steel.

SLIDING DOOR COOLER—Nor-Lake, Inc., Hudson, Wis. Unit is constructed of cold rolled welded steel for heavy duty use, and is equipped with galvanized liner, stainless steel sliding doors, bottle decapper, and adjustable tempera-



ture control. Double compressor grills are provided for island operation. Cooler has capacity for 150, 12-oz. bottles or 180 of the 7-oz. size.

TESTING CABINET—Harris Refrigeration Co., Cambridge, Mass. Multiple compartment environmental testing chamber permits simultaneous yet individual testing of two sections of an operating system. One compartment subjects operating portion to temperatures ranging from -100 to 200°F while controlling instrumentation is isolated in another carefully regulated chamber. Device employs thermostatic temperature control, has Thermopane doors, and is constructed entirely of re-enforced,



welded steel. Compartments are cooled by a single, cascaded compressor unit and are heated by oven-type elements.

DRINK DISPENSER—Bastian-Blessing Co., Chicago, Ill. "Cold-point" unit with self-contained car-

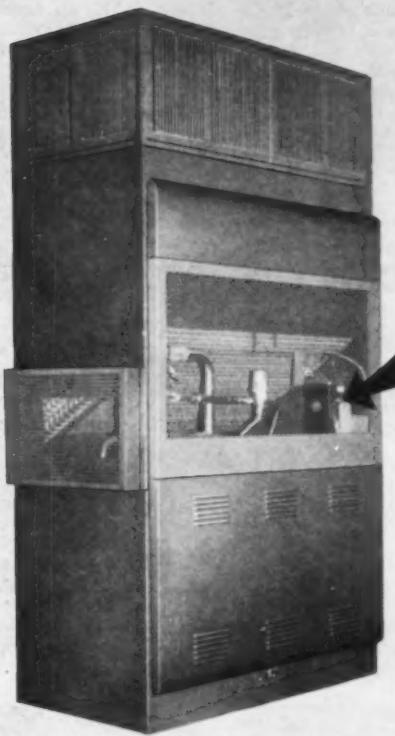


bonator and compressor and four patented "Minimax" draft arms in which syrup or concentrate and plain or carbonated water are mixed automatically at the nozzle to assure uniform drinks. Dispenser is mechanically refrigerated up to draft arm nozzles, occupies 36" x 25" of floor space, and is equipped with an illuminated revolving "Rot-to-sign" mounted on top of unit.

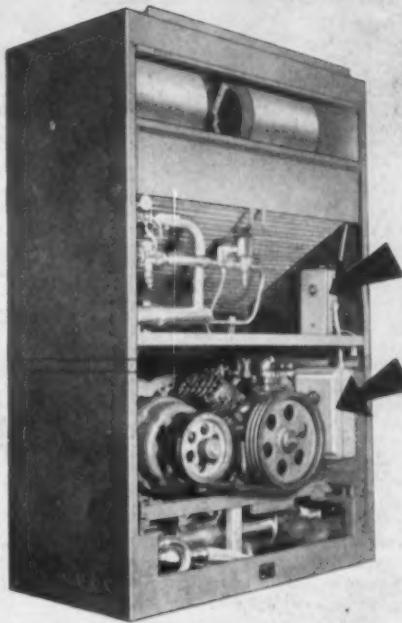
ICE CUBE MACHINE—Frigidaire Div., General Motors Corp., Dayton, Ohio. Unit produces 450 lbs. of cubes or cubelets per day by automatic process which forms ice slab and transfers it to a grid where cubes



are cut to size and dropped into storage bin of 375 lb. capacity. Machine stops when bin is full and begins cycle again when supply is diminished. Cutting grids for cubes and cubelets are interchangeable, and thickness of ice can be varied from $\frac{1}{4}$ to $\frac{3}{4}$ ".



Typhoon Model 214SC 20 Hp. Package Air Conditioner which is equipped with Allen-Bradley Bulletin 709 motor starters and controls.



Typhoon Model 164SC 15 Hp. Package Air Conditioner which is equipped with Allen-Bradley Bulletin 709 solenoid starters.

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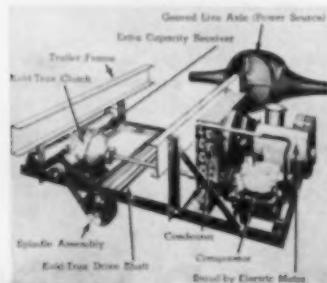
ICE MAKER—*Henry Vogt Machine Co., Louisville, Ky.* Automatic "Tube-Ice" unit, that produces 2,000 lbs. of either cylinder or crushed ice every 24 hours. Made of stainless steel, inside and out, the machine



occupies 14-1/2 sq. ft. of floor space, utilizes a 3-hp compressor with water cooled shell and coil condenser, and is equipped with hinged "scoop-out" and "shovel-out" combination access doors. Storage bin accommodates approximately 650 lbs. of ice and is insulated with a minimum of 3" of Fiberglas.

FLAKED ICE MAKER—*Belt-Ice Corp., Seattle, Wash.* "Knowles" solid drum, direct expansion type ice machine, that operates on ammonia or Freon-12 and is available in 1/2 to 25-ton sizes. Cutter bar removes ice by impact and ice is delivered in flake form, suitable for packing fish, poultry, dairy products and other items.

TRUCK-TRAILER SYSTEM—*Kold-Hold Div., Tranter Mfg. Inc., Lansing, Mich.* Power to drive compressor in "Kold-Trux" cooling sys-



tem is produced by rotation of geared trailer axle, substituted for standard, which eliminates need for connection to engine. Power is

transmitted through patented clutch and system will maintain any temperature from -20 to 50F. Units are available in 2 and 3-hp models with single and twin condenser units, and are equipped with either a 2-hp or 3-hp electric motor for stand-by use.

COOLING TANK—*Temprite Products Corp., Birmingham, Mich.* Model XW-150C water cooling tank for use with separate condensing unit in custom water cooling installations. Unit may be connected to glass filler, bubbler, or other outlet, and may be used for auxiliary line cooling. Available with or without



insulated cabinet. When cabinet enclosed, the size is 7-1/8" square, by 15-1/8" high. Capacity when used with a precooler is 27 gph.

DISPENSING UNIT—*Everfrost Sales, Inc., Gardena, Calif.* "Speed-Serv" dispensing head for installation on boottail fountains or creamer units. Units are available in a wide range of mixing faucets and draft arm combinations; are mechanically chilled by cold wall type refrigeration, and can be used on a fountain in conjunction with regular draft arm station.



ICE CUBE MACHINE—*La Crosse Cooler Co., La Crosse, Wis.* No. 864 "Senior Kube King" has 1/2-hp air-cooled compressor and water-cooled



condenser. Produces 52 cubes per freezing and has capacity for 200 lbs. in 24 hours. Cubes are automatically dropped as produced into steel storage bin of 110 lbs. capacity. Condensing unit is mounted on pull-out panel. Top and front panel are of stainless steel.

DRINK DISPENSERS—*Kold-Draft Div., Uniflow Mfg. Co., Erie, Pa.* Ice bank and circulating ice water features permit greater output during peak periods. Unit dispenses as many as four flavors plus jet stream and soft soda, and ice water. Available in self-contained or remote-



type models and measures 37-1/2" wide, 20" deep, and 40" high. Exterior finish, water reservoir, syrup tanks, and chilling coils are stainless steel.

WATER COOLERS—*Punxsutawney Co., Punxsutawney, Pa.* Line of 32 industrial and restaurant type "Bev-



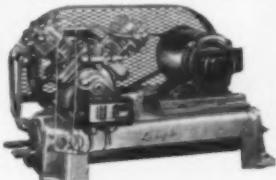
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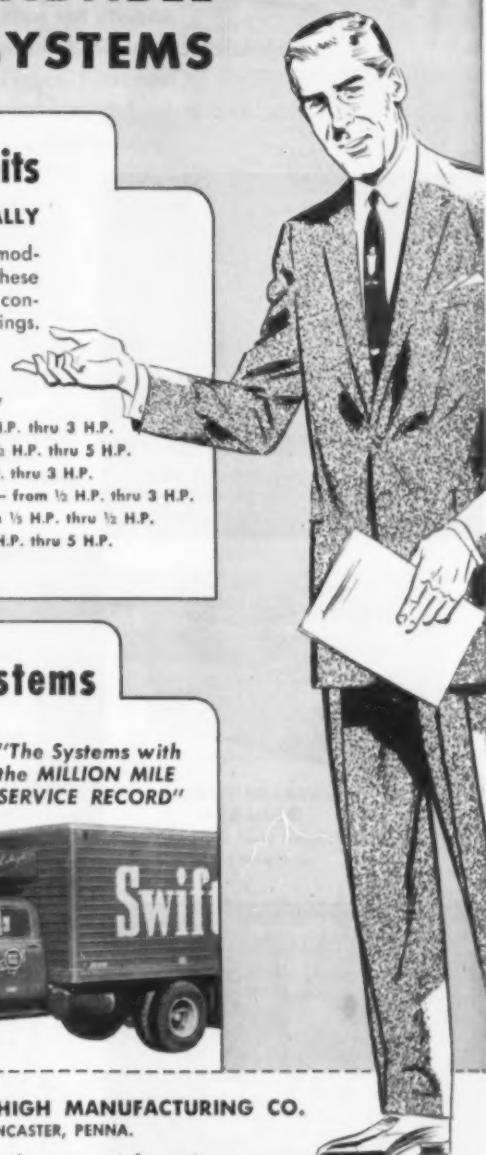


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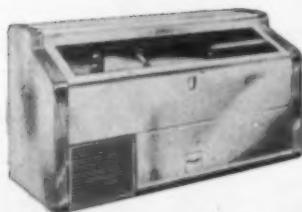
STYLE-LINE
REACH-IN REFRIGERATOR
Model SJ-20 Also available in White
Stainless Steel Enamel—Model WJ-20



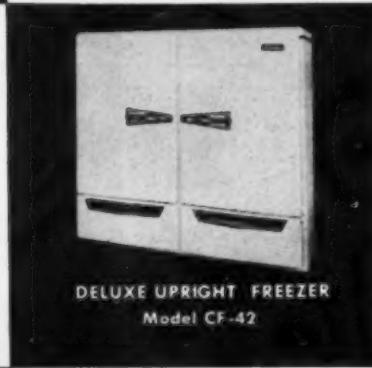
STYLE-LINE
REACH-IN REFRIGERATOR
Model SJ-62 Also available in White
Stainless Steel Enamel—Model WJ-62



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Model BS-6
Stainless Steel with roll-back
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DELUXE UPRIGHT FREEZER
Model CF-42



COMBINATION
REFRIGERATOR-FREEZER
Model 14/6



REFRIGERATOR WALL CASE
Model S-4 1/2 G



Booth # 429 Center Aisle



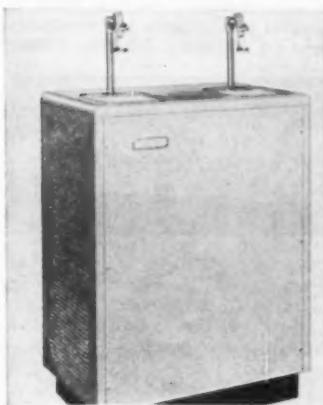
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verage-Air" water coolers that provide capacity for peak loads through cooling incoming water and storing it in a large tank held at 40 F or any other desired setting. All controls



are easily accessible; capacities range from 20 to 110 gph; bubblers or glass fillers are optional.

CONTINUOUS FREEZERS — *Freez-King Corp., Chicago, Ill.* Freezer units for ice cream, frozen custard, and milk-shake drinks. Model 150, for ice cream or frozen custard, is equipped with dial that shows when product is at proper serving consistency; has a reservoir which is automatically refilled with mix when finished product is drawn off, and features either spigot or knife type draw-off gate. Model 160 is milk-shake type dispenser which can serve up to 200 orders per hour.

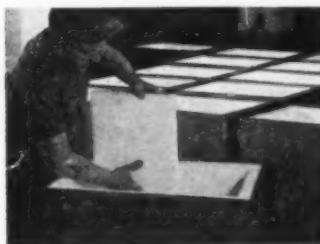
the rate of eight bushels a day. Cut-off stops machine when storage bin is full. Unit, which is made of non-corrosive materials, is provided with $\frac{3}{4}$ -hp hermetically sealed compressor, and measures $49\frac{1}{8}$ " high, 27 $\frac{1}{2}$ " wide, and $44\frac{1}{8}$ " deep.



Continued on page 87

INSULATION AND INSULATING MATERIALS

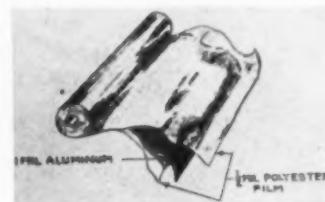
LOW-TEMP INSULATION — *Dow Chemical Co., Midland, Mich.* "Styrofoam" expanded polystyrene insulation adaptable to a wide variety



of low temperature applications from insulating holding rooms to cabinets and trucks for storage and delivery of ice cream and frozen foods.

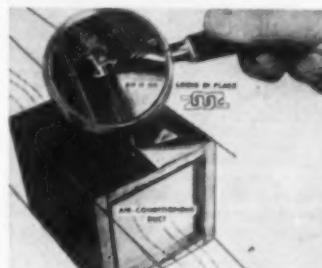
mil thicknesses of transparent polyester film. Combines vapor barrier qualities of aluminum with workable characteristics of plastic film. Also available in form of pressure sensitive tape that greatly simplifies sealing of joints. Adhesive is completely permanent, and test

Recommended for heating, piping, refrigeration, and air conditioning systems.



joints sealed with $1\frac{1}{2}$ " Zero Perm tape showed zero permeability per linear inch in 24 hours. Strength of taped joint is practically equal to that of vapor barrier itself.

ZIP-ON DUCT COVER — *Miracle Adhesives Corp., New York, N.Y.* "Protektsinsul" prefabricated, specially compounded polyvinyl chloride duct covering furnished to exact size and fitted with a zipper so that the cover simply zips on and locks in place. Requires no cutting, fitting, or sewing on the job. Provides air-tight, water-tight, vapor-tight finish for use either indoors or out, and is available in several colors. No painting, finishing, or further maintenance is required.



VAPOR BARRIER — *Alumiseal Corp., New York, N.Y.* "Zero Perm" is a permanent vapor barrier as flexible and workable as a film and as strong and durable as a sheet of metal. Reduces moisture vapor permeability to practically zero. Formed by laminating a 1-mil thickness of aluminum between two $\frac{1}{2}$ -

PIPE COVERING — *U.S. Rubber Co., New York, N.Y.* "Asbestos" pipe jacketing made of aluminum foil laminated onto vapor-proof asbestos cloth. Material is resistant to fire, acid, and water. Requires no painting and will not absorb odors.

PLASTIC PIPE INSULATION—*Armstrong Cork Co., Lancaster, Pa.* "Armaflex" tubular insulation for dual temperature lines in air conditioning is resilient and flexible, can be slipped on pipes when system is being installed. For pipes



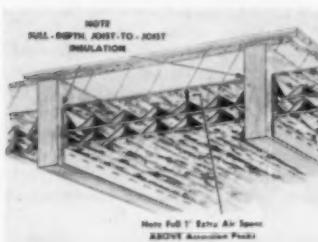
already installed, plastic tubing can be cut to desired length, slit lengthwise, snapped into position, and sealed with adhesive. Requires no vapor barrier. Thermal conductivity is .28 at 75 F and it will withstand temperatures from 32 to 200 F. Low in air and water vapor permeability and in water absorption. Prevents condensation caused by climatic conditions. Made in 6' lengths in $\frac{5}{8}$, $\frac{7}{8}$, $1\frac{1}{8}$, and $1\frac{3}{8}$ " sizes.

INSULATING BLOCKS—*Pittsburgh Corning Corp., Pittsburgh, Pa.* "Duraface Foamglas" structural blocks combine insulating properties with ceramic surface. Unsupported walls can be built of these blocks, which measure 12 x 18 x 3 or 4". Ceramic surface $\frac{3}{4}$ " thick adds moisture-proof qualities to insulating properties of cellular glass to which it is fused. Blocks may be joined by hot asphalt or cold adhesive. Units are beveled to facilitate sealing installations where high humidities or low temperatures exist. Excellent for uses where



sanitation is important, as walls may be washed with water. Tests indicate surface impact resistance about twice that of cement plaster.

INSULATING MATERIAL—*Infra Insulation, Inc., New York, N.Y.* Each section of Type 6PS aluminum and fiber insulation for walls and ceilings includes three aluminum sheets, separated by two accordion fiber sheets to provide 1" extra air space within total 3" thickness. Provides barrier against heat flow by conduction, convection, and radiation.



PIPE INSULATION KIT—*Smith-Gates Corp., Plainville, Conn.* Contains materials to protect pipes from freezing or dripping. Includes 25' of 3" "Fiberglas" and two rolls of waterproof tape, each 20' x $1\frac{1}{2}$ ". Fiberglas is wound spirally around pipe in one direction, while tape is wound similarly in the opposite direction. One package contains materials sufficient for 15' of $\frac{3}{4}$ " pipe or 20' of $\frac{5}{8}$ " pipe.



BUILDING INSULATION—*Owens-Corning Fiberglas Corp., Toledo, Ohio.* Layer of "Fiberglas" is sandwiched between two layers of aluminum foil to form this new insulation. The two materials have complementary insulating properties. Foil on outer surface, perforated to avoid moisture build-up, reflects heat rays. Interior foil provides vapor barrier.

INSULATED PANELS—*Haskelite Mfg. Corp., Grand Rapids, Mich.* "Hasko-Struct" panels have fiberglass cloth polyester laminating facing sheets bonded to various densities of styrofoam, plywood, or other types of core material. Surface finish is integral part of units and eliminates need for additional finishing. Stand-



ardization of units, structural strength, and light weight are among advantages. "Hasko-mold" shapes (strips, angles, channels, and jamb) match panel face sheets.

PLASTIC INSULATION—*Nopco Chemical Co., Harrison, N.J.* "Urethane" is a new synthetic foamed-in-place plastic for refrigeration insulation. It has a closed cell structure, excellent weight-to-density ratio, and low heat conduction. It resists water vapor, mold and fungus, and is free from odor. Foam is produced on job by mixing two liquids at room temperature. Mixture is then poured into space to be filled. It sets in just a few minutes.

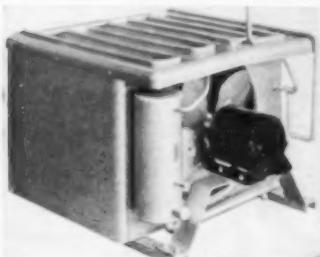
COLD STORAGE DOOR—*Clark Door Co., Inc., Newark, N.J.* Electrically operated automatic door for refrigerated rooms is claimed to be specially suited for frozen food locker plants and similar applications. Fiberglas insulation of recommended thickness is used in the door sections. Temperature interchange is further minimized by



specially designed rubber sealing gaskets that provide unusually tight closure. Door opens or closes in 3 to 4 seconds. Each door comes as complete package.

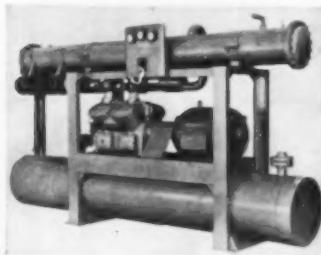
HEAT EXCHANGE EQUIPMENT

NEW-TYPE DEFROSTER — *Refrigeration Engineering, Inc., Los Angeles, Calif.* "Vapomatic" defroster uses heat of compression



without supplements for defrosting at below freezing temperatures. Unit applies heat continuously during defrost cycle. Only addition to is the "Vapot" (shown at right of fan motor.) This is an efficient heat exchanger which improves compressor capacity and of the whole system during the cold cycle.

WATER CHILLERS — *Carrier Corp., Syracuse, N. Y.* Complete line of packaged water chillers is designed for air conditioning and process refrigeration where space is critical. Components are mounted in

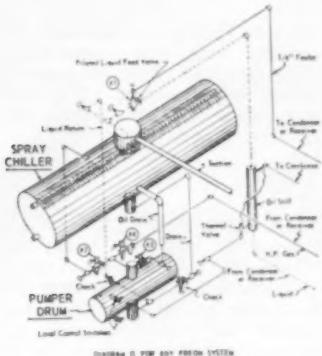


a structural steel frame, either vertically or horizontally. Reciprocating compressor automatically unloads cylinders at start-up. Units range in size from 5 to 125 hp.

SPRAY-TYPE CHILLER — *J. E. Watkins, Maywood, Ill.* Chiller-recirculator uses sprayed refrigerant to extract heat from liquids such as brine, water, or Aerosol. Upper horizontal drum contains bank of tubes through which flows the liquid to be cooled. Refrigerant, such as am-

monia or Freon, is sprayed over tubes, and its vapor is drawn out of drum's top. Excess liquid drains to a lower drum. By means of high pressure gas from receiver or from condenser, excess liquid is "pumped" to chiller sprays. Automatic controls alternate operation from draining to

Cel has independent electric heating unit, thermostat controlled, and replaceable in the field. It is adjustable. Unit includes timer, solenoid valve and shut-off valve. Sizes are for use with 1, 2, and 3-hp condensers. Timer may be set for defrost periods ranging from 1 to 24 hours.

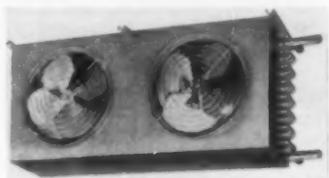


pumping cycles. Current applications include brine chilling for skating rinks, and cooling water for air conditioning. Low refrigerant charge is among several advantages claimed.

STORED-HEAT DEFROSTER — *Dole Refrigerating Co., Chicago, Ill.* — "Heat-Cel" unit accumulates heat at low wattage and then applies it to convert liquid refrigerant to gas while the refrigerant is returning to compressor during defrosting cycle.

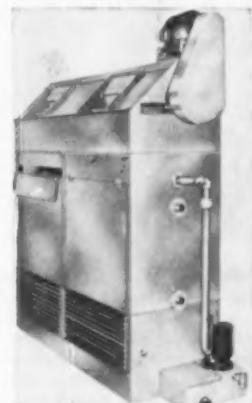


The unit also adds enough extra heat to the gas to lift temperature after it passes through compressor, thus permitting defrosting to be accomplished in minimum time. Heat-



from 2 to 10 tons, are designed for single or multiple installations and are for either indoor or outdoor use. Cores are copper tubing with aluminum fins and are housed in a heavy duty casing.

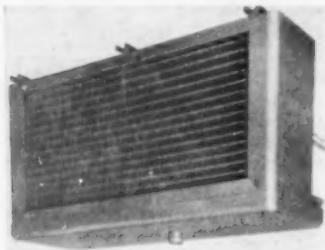
HEAVY DUTY CONDENSERS—
Industrial Mfg. & Engineering Co., Chicago, Ill. New model "Imeco" evaporative condensers are in 16 sizes from 5 to 100 tons. They are designed for heavy duty as in meat packing. Pan, casing, coil, supports, fan wheels and housing, eliminators, and pump strainers are hot dip gal-



vanized after fabrication. Door hinges are stainless steel. Fan wheels are on large diameter shaft to eliminate

inside bearings. Pump strainer is outside the casing for easy cleaning. A variety of air inlet and outlet locations, and of piping arrangements, are possible.

UNIT COOLERS — *Drayer-Hanson Inc., subsidiary of National-U.S. Radiator Corp., Los Angeles, Calif.* "Focold" unit coolers are available in three types: for room tempera-



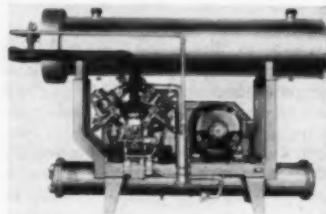
tures over 34 F, using Freon and water defrost; for temperatures over 34 F, using ammonia and water defrost; and for temperatures under 34 F, using ammonia and water defrost. Model ratings range from 340 to 4800 Btu per degree of temperature difference. Overlapping propeller-type fans reduce noise.

INNER-FIN CONDENSERS — *Bush Mfg. Co., West Hartford, Conn.* Two basic air-cooled models (PFC-200 and PFC-330) may be used in various combinations of capacities. Both



of these propeller fan condensers feature the patented Bush "inner-fin" coil construction. Multi-unit connecting is easy. Headers are swaged at one end, and header caps are provided for sealing opposite end. Multiple floor stands and conversion kits also aid field assembly. For indoor installation, a duct can be installed on the flanges of the casting on the air discharge side.

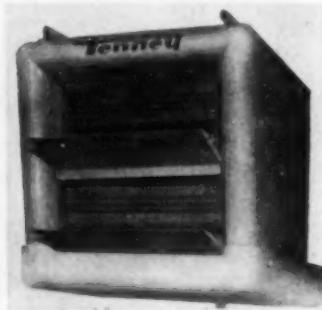
LIQUID CHILLERS — *Curtis Refrigerating Machine Div., Curtis Mfg. Co., St. Louis, Mo.* Packaged liquid chillers for air conditioning or process cooling range from 7½ to



100 tons. Components include multi-cylinder compressor, water-cooled shell-tube condenser, expansion valves, chiller section, all controls and wiring. Units are available either stripped or in cabinets.

PACKAGED CHILLER — *Bell & Gossett Co., Morton Grove, Ill.* "Hydro-Flo" packaged liquid chiller is available in capacities from 7½ to 50 tons, and is especially recommended for combining with wet heating systems as well as for industrial processing. Layout locates compressor and motors in upper section of cabinet for easy servicing. Flywheel's fan blades provide air cooling for compressor. Refrigerant piping is silver brazed. Compressor position assures no slugging damage. Entire unit is charged with F-12 refrigerant and is factory tested at varying load conditions. No fabrication in field is required.

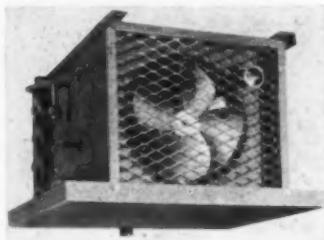
EASY-MOUNT COOLER — *Tenney Engineering, Inc., Union, N. J.* "Angle-Air" general purpose cooling unit is easy to mount and service. For mounting, a template is first fastened in position, then unit



is slid into position on rail hangers. Cooler's suction line provides simple expansion valve location. Unit has aluminum fins mechanically bonded

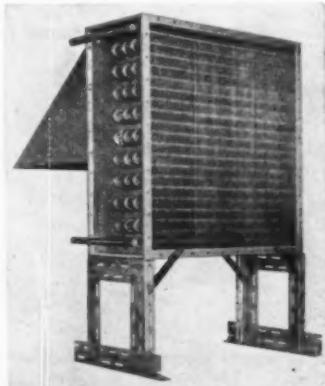
on tin-plated copper tubing. Included also are adjustable louvers and vibration mounted motor. Capacities range from 4000 to 40,000 Btu.

COOLER UNIT — *Refrigeration Appliances, Inc., Chicago, Ill.* Series BUC, "Krack" unit cooler is for general applications. Ceiling mounted, there are single and double-fan models with a range from 265 to



1400 Btu at one degree t.d. Units include heat exchanger, tin-plated copper tubes, balanced corrosion-proof fan blades, built-in refrigerant distributor, galvannealed steel housing with baked enamel finish.

CONDENSER SERIES — *Peerless of America, Inc., Chicago, Ill.* "Hi-F NW" series of air-cooled condensers in sizes up to 10-ton capacity are available for indoor or outdoor in-



stallation. Stands are obtainable for multiple units to 40 tons. Protective features are designed to eliminate maintenance difficulties.

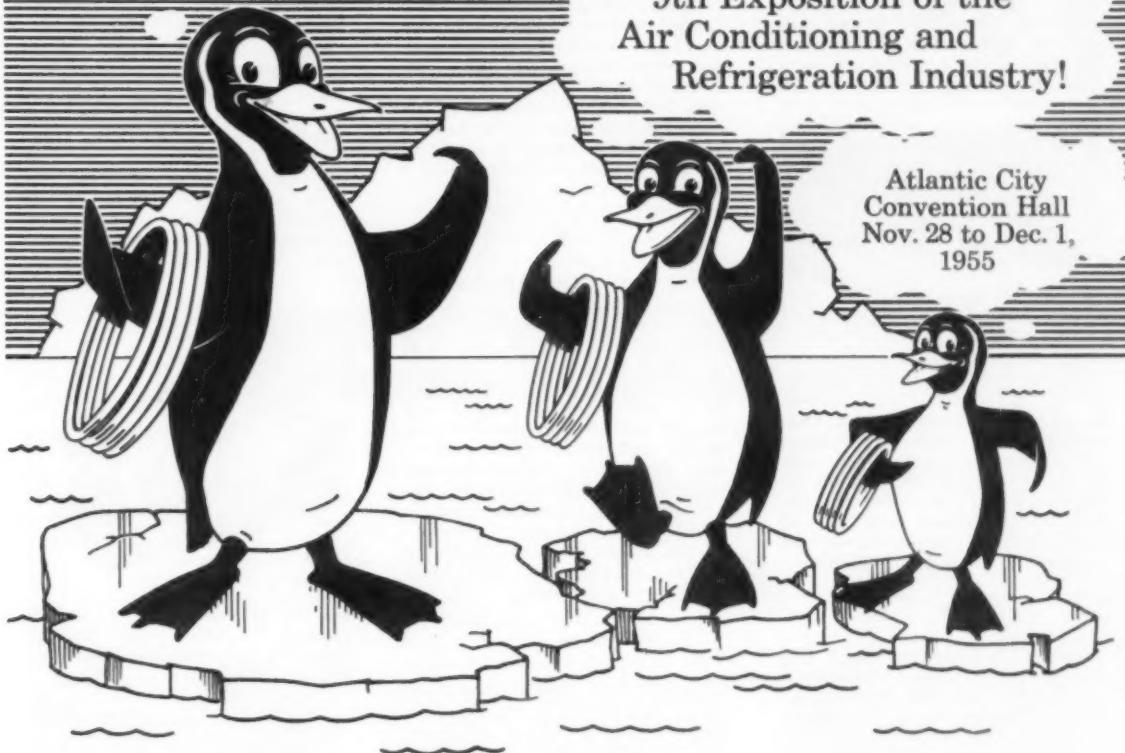
AIR-COOLED CONDENSER — *Rempe Co., Chicago, Ill.* "Atmos-Therm" air-cooled condenser for air conditioning systems liquifies hot gas

Continued on page 128

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COMPRESSORS..CONDENSING UNITS..PUMPS

SUCTION-COOLED UNITS — *Copeland Refrigeration Corp., Sidney, Ohio.* Three new air-cooled condensing units with suction-cooled motor compressors have been added to the "Copelametic" accessible hermetic line. These self-contained units are now in production in 2, 3, and 5-hp sizes. They are designed especially for air conditioning and other



high suction pressure applications. Standard unit consists of suction-cooled motor-compressor, oversize finned-tube condenser, relay box, twin fans, and heavy-duty receiver, all mounted on sturdy metal base. Assembly is complete with all refrigerant and electrical fittings. Shipped dehydrated with normal charge of factory-approved oil and standard Freon holding charge.

SUMP PUMP — *Carver Pump Co., Muscatine, Iowa.* Submersible pump will handle up to 3250 gph. Has no outside floats or rods. Motor housing



is the float and is adjustable to operating range desired. Will operate in water up to 15 feet in depth. The $\frac{1}{3}$ -hp motor is completely enclosed and sealed in a stainless steel housing. No lubrication required. Foolproof, automatic operation assured.

CONDENSATE DISPOSER — *Murphy Equipment Co., Decatur, Ill.* Self-contained disposal unit for condensate from air conditioning and refrigeration equipment. Receiver located above pump insures 100% flooded suction. Float switch actuated by a mercury tube provides positive control and protects pump from running empty. Galvanized receiver also has neoprene coating. Tank holds 2 gallons. Motor is 1/6 hp, 115 or 120 volts. Capacity is 5 gpm at 15' tdh. Overall size is $16\frac{1}{2} \times 15 \times 9\frac{1}{8}$ ".

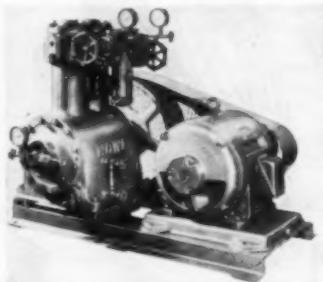
OPEN-TYPE COMPRESSORS — *Brunner Mfg. Co., Utica, N. Y.* "NR" series of completely redesigned and engineered basic compressors for use with refrigeration condensing units in the 10 through 40-hp range. One of several new lines of products introduced in connection with the firm's 50th anniversary these units feature internal manifolding for better cylinder cooling and less vibration; pressure lubrication to improve oil spread to all bearing surfaces; and improved locking device to prevent drive wheel from freezing to shaft.

ABSORPTION UNITS — *Carrier Corp., Syracuse, N.Y.* Range of 11 sizes from 100 to 700 tons in absorption-type refrigerating units to produce chilled water from hot steam. Units have no major moving parts and will adjust automatically from full load down to virtually zero load with little loss of efficiency. Designed to produce low cost cooling wherever an economical source of heat such as natural gas is obtainable, or where it is available as a by-product of some process using steam. Lightweight construction permits installation on roofs. Silent operation. Automatic controls reduce supervision to a minimum.

LIQUID TRANSFER PUMPS — *F. E. Myers & Bros. Co., Ashland, Ohio.* Three new sizes of "Centri-Thrift" centrifugal pumps applicable to air conditioning systems. Line now includes $\frac{1}{6}$, $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, $1\frac{1}{2}$, 2, and 3-hp sizes, in motor-mounted or belt-driven models.

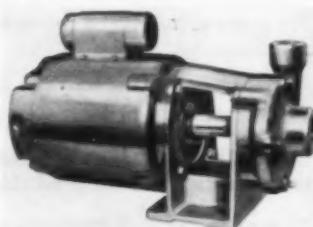
Shafts are corrosion resistant stainless steel. Removable bronze wearing ring and rotary seal eliminate packing box drip. Closed impellers in pumps are dynamically balanced.

BOOSTER COMPRESSORS — *Howe Ice Machine Co., Chicago, Ill.* Ammonia booster compressors in 2 and 3-cylinder models. Sizes range from 5 to 75 tons capacity. Units feature heavy duty construction, medium speeds, elimination of oil pumping, and heating and valve breakage problems. Crankshaft seal with lubricating oil under pressure,



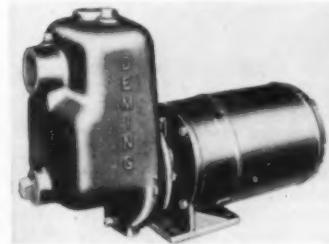
positive air infiltration under all vacuum conditions, and internal force feed lubrication to all bearings also are provided.

BOOSTER PUMPS — *A. Y. McDonald Mfg. Co., Dubuque, Iowa.* Series 7720 centrifugal pumps in fractional horsepower sizes, especially applicable for air conditioning and booster pump service. Capacities range as high as 70 gpm at heads up to 85'. Pumps are single stage, single suc-



tion, enclosed impeller type, designed for horizontal, vertical, or angular mountings. Sizes are $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{3}{4}$, and 1 hp.

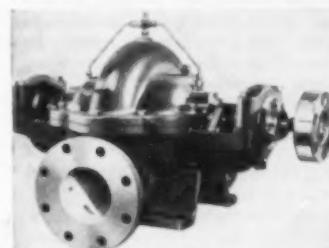
CENTRIFUGAL PUMP — *Deming Co., Salem, Ohio.* "Motor-Mount" centrifugal pump for air conditioning systems and general use. Unit is self-priming, has stainless steel shaft, bronze impeller, and rotary type shaft seal. Powered by 3500 rpm, single-phase or three-phase motor, pump is



available in capacities to 110 gallons per minute with heads as high as 127'. Motor sizes from $\frac{1}{2}$ to 5 hp.

REFRIGERATING MACHINES — *Frick Co., Waynesboro, Pa.* "Eclipse" line of open-type refrigeration compressors for handling either Freon or low-pressure ammonia. Each machine has 9 cylinders, with $4\frac{1}{8}$ " bore and $4\frac{1}{4}$ " stroke. All have same safety cylinder heads, capacity controls, valves, pistons, and lubricating systems. Capacities vary with speed, suction and discharge pressures, and other conditions. Standard drive is by V-belts.

AIR CONDITIONING PUMP — *Alis-Chalmers Mfg. Co., Milwaukee, Wis.* Type KS double-suction pump



WATER PUMP SYSTEMS — *Lancaster Pump & Mfg. Co., Inc., Lancaster, Pa.* Line of automatic pump systems includes three models: "Turbo-Pak" for shallow wells; "Zephyr-Pak", a higher capacity unit for shallow pumping; and "Supreme-Pak" for shallow or deep wells.

for air conditioning and general purpose applications. Unit has horizontally-split cast iron casing, bronze impeller, grease lubricated ball bearings, and deep but easily accessible stuffing boxes. It is offered in five sizes from $3 \times 2\frac{1}{2}$ ", 1750 rpm at 150' head, to 6×6 " at 100' head.

ELECTRIC MOTORS AND ACCESSORIES

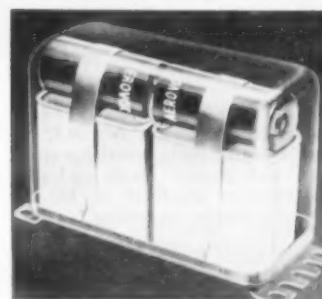
POLYPHASE MOTORS — *Wagner Electric Corp., St. Louis, Mo.* Type DP general purpose ball bearing polyphase motors in re-rated NEMA frame sizes. Corrosion-resistant cast iron frames and drip-proof construction. To protect them from moisture,



ventilating air intakes are located at bottom of endplates and outlets are positioned at base of frames on each side. Available in 1 to 30-hp ratings.

STARTING ACCESSORY — *General Electric Co., Schenectady, N.Y.* Device for 3 to 5-hp air conditioning units reduces electrical load 50% in starting. Saves cost of heavier lines and transformers required for full voltage starting. Especially useful after temporary power failures, holding down current demand long enough for other equipment on same lines to get started first.

CAPACITOR PACKS — *Aerovox Corp., New Bedford, Mass.* Assembled packs for power factor correction for air conditioners include starting, running, and fan capacitors. Assemblies may be extended to include relays, pressure controls, fuses, and other controls. Either conduit-type boxes with BX cable and standard fittings, or rain-tight containers for outdoor mounting are available. May be obtained to meet any standard specifications. Advantages include elimination of possible wiring errors, improper wiring, and similar hazards.



FAN COOLED MOTOR — *Century Electric Co., St. Louis, Mo.* New $\frac{1}{2}$ -hp model added to line of totally enclosed fan cooled motors which

now ranges from $\frac{1}{2}$ -hp to 100-hp in size. Available for both single phase and polyphase operation. Construction is in the new re-rated frames. Recommended for use in dirty, dusty, fume and mist-laden atmospheres that could damage ordinary motors.



Virtually indestructible aluminum rotor with skewed laminations. Ventilating fan, integrally cast with rotor, acts as rotating seal and is equally efficient operated in either direction. Six-layer insulation for stator windings. Mechanical modifications provide availability of NEMA standard "P" and "C" brackets for bolting motor to machine.

MOTOR STARTER — *Cutler-Hammer Inc., Milwaukee, Wis.* Manual motor starter provides across the line starting as well as overload protection for fractional horsepower motors driving small machine tools,

fans, blowers, and similar equipment. Operation is by means of an on-off standard type toggle lever. Toggle mechanism is positive acting, producing quick make and break contacts which cannot be "teased" or stalled between open and closed positions.

MOTOR STARTING CAPACITOR

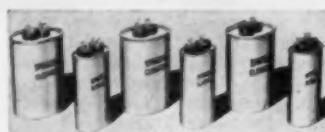
Cornell-Dubilier Electric Corp., South Plainfield, N.J. Type ETW electrolytic motor starting capacitors with intermittent duty cycle designed for a maximum of 20 3-second starts



per hour. Available in a wide variety of voltage ratings and in capacity ranges from 25 mfd. to 450 mfd. Made in bakelite containers of four different sizes. Maximum recommended operating temperature at the capacitor is 65 F. Furnished with solder lugs at terminals, and improved mounting brackets.

CAPACITORS — *Sprague Electric Co., North Adams, Mass.* Universal type terminals are standard on drawn oval-case "Clorinol" a-c capacitors. They permit unit to be installed with or without soldering. Notched and perforated blades also

fit quick-connect clips used with harness wiring. Standard sizes available for 236, 330, 440, and 660 volts,



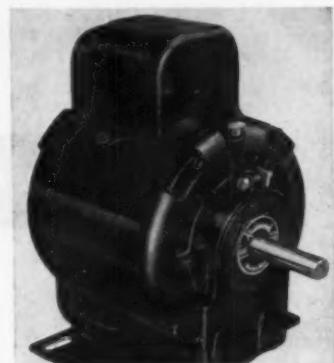
60 cycles. Either shallow or deep-over cases can be furnished, and fork-type and single blade terminals are available.

VOLTAGE BOOSTERS — *Control Systems, Inc., Brooklyn, N.Y.* Series 250 voltage booster for eliminating low line voltage on air conditioning and refrigeration installations. Can be supplied in either of two models. Where a low voltage condition exists continually throughout the day a fixed voltage booster is recommended. Where the low voltage condition is due to peak loads of the area, an automatic built-in controller can be supplied that boosts the voltage only when needed. Female outlet facilitates connecting machine to booster.

OVERLOAD PROTECTOR — *Machine Accessories, Minneapolis, Minn.* "Tork-O-Stat" protective coupling prevents overloads. Used between any drive shaft and a driven shaft to give positive instant protection against overloads and sudden jams. When torque rating of coupling is exceeded, internal parts are dis-

engaged and a complete disconnect results. When overload or cause of jamming is removed, unit will re-engage and normal drive is resumed automatically. Small in size and requiring no lubrication or safety guard, it can be close-coupled and easily installed.

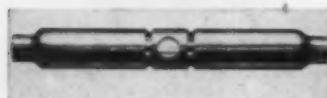
NEW MICROMOTOR — *Redmond Co., Inc., Owosso, Mich.* Type C permanent split capacitor micromotor eliminates starting switches and relays and permits motor to be loaded down to lower than nominal speeds. Also provides lower starting current, low running current, high power factor, high efficiency, grad-



ual torque buildup, and is suitable for multi-speed operation. Light weight uni-cast construction for mounting in any position. Specially designed for window type air conditioners and direct drive blowers for central air conditioning systems.

VALVES AND FITTINGS

LIQUID INDICATOR — *Allin Mfg. Co., Chicago, Ill.* Series 2000 "Liquid Eye" indicator for packaged air conditioning and refrigerating units using $\frac{3}{4}$ or $\frac{5}{8}$ liquid line. All threaded connections are eliminated in unit which consists of a copper



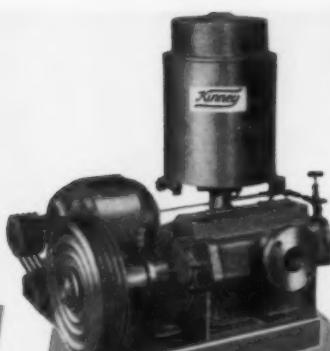
tube into which the parts are assembled before final spinning of ends to tube size. Springs force gaskets

into contact with sides and ends of glass to form perfect seal between glass and copper housing. Units are tested at pressures of 300 to 350 psi to assure no leaking.

MOISTURE DETECTOR — *Ansul Chemical Co., Marinette, Wis.* Leak-proof window in "Dry-Eye" unit contains special indicating element which shows blue when refrigerant is dry and turns pink when moisture is present. Cartridge part of unit cleans system by removing moisture,



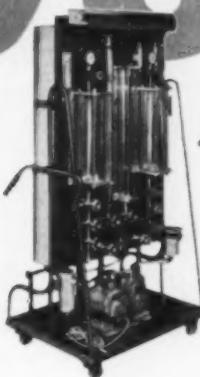
acid, and sludge. Can be easily removed without breaking refrigerant line, and a new cartridge screwed onto indicator fitting. Cartridges are available in a wide variety of sizes.



VACUUM

... FOR PRODUCTION

Kinney High Vacuum Pumps are being used on more and more compressor production lines because of their proven ability to create and maintain low absolute pressures quickly and efficiently, and to provide the rapid recovery speed necessary for high production rates.



... FOR SERVICE SHOPS

Kinney Portable Vacuum Service Stations are designed expressly for service shop use where it is necessary to duplicate production-line evacuating and charging performance. They are self-contained, portable, and compact.



... FOR DEVELOPMENT

Whatever the vacuum needs of the development engineer, there is a Kinney High Vacuum Pump to produce the right vacuum accurately, efficiently, and economically.

Kinney has 16 vacuum pump models (all available gas ballasted) ranging from the 2 cu. ft. per min., 1/4 HP model to the 780 cu. ft. per min., 40 HP unit. Kinney Compound Vacuum Pumps produce low absolute pressures to 0.0002 mm Hg... Single Stage Pumps to 0.010 mm Hg.

Consult Kinney for vacuum engineering data and recommendations. District offices in Boston, New York, Philadelphia, St. Louis, Cleveland, Chicago, and Los Angeles are all competently staffed to discuss vacuum with you. Los Angeles office carries complete stock and has full service facilities.

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Circle No. 45 on Reader Service Card



Mr. Hall with the 30-ton air conditioning unit H.J.S. Refrigeration recently installed in a big supermarket. In the background are some of the 27 refrigeration units, also equipped with American VE's.

"FROM SUPERMARKETS TO AUTO AIR CONDITIONERS, AMERICAN VIBRATION ELIMINATORS PAY THEIR WAY"

says D. L. HALL, H. J. S. REFRIGERATION CO., Orlando, Fla.

"The use of American Vibration Eliminators saves money for compressor owners — whether air conditioning or refrigeration is involved," says D. L. Hall of H. J. S. Refrigeration Co. "They help eliminate line breakage, the loss of refrigerant and the bigger secondary expenses from loss of cooling. The growth of automobile air conditioning just points up the problem. We installed American VE's in over 100 cars last year—after hose or tubing failed, necessitating major overhauls on the compressors.

"I like the dependability of American VE's—we've had trouble in the past with other type units — but not with American. The modern refrigeration firm can't afford to do without them," Mr. Hall concludes.

YOU CAN USE AMERICAN VE'S WITH CONFIDENCE BECAUSE—

The right metal does the job. The special tin-bronze alloy — the result of American Brass metallurgical know-how—is tailored for refrigeration and air conditioning.

Double braid where extra protection is needed. On all American VE's 2 $\frac{1}{2}$ " O.D. or larger.

Clean, dry, tested, protected. Snip the end of the vapor-proof polyethylene bag and you have a factory-fresh unit to install in the line.

Packaged for your convenience, protection. The new boxes are sturdy, easy to open, easy to identify. No confusion or fumbling.

NOW listed by
Underwriters' Laboratories, Inc.
through sizes 3 $\frac{1}{2}$ " O.D.

For descriptive folder write: The American Brass Co., American Metal Hose Division, Waterbury 20, Conn. In Canada: The Canadian Fairbanks-Morse Co., Ltd.

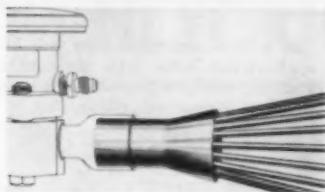
WHEREVER CONNECTORS MUST MOVE

AMERICAN
For American Vibration Eliminators
see your
ANACONDA®
DISTRIBUTOR

Circle No. 46 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

REFRIGERANT DISTRIBUTOR—*Alco Valve Co., St. Louis, Mo.* Venturi-type device that assures equal flow of refrigerant in multi-circuit evaporators. One piece unit has no nozzles or parts, works equally well in any position, and is easily in-



stalled and maintained. It has a wide application range, from 25% to 150% of rated capacity, with only a small pressure drop at maximum conditions.

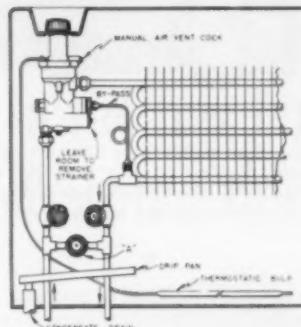
VALVE AND FILTER DRIER—*Henry Valve Co., Melrose Park, Illinois.* The company has added a new, compact, and low priced packless valve and a newly designed filter-drier to its line of standard and special valves, driers and accessories. Units have advanced field-proven design and construction as well as patented features.

PRESSURE REGULATING VALVES—*A-P Controls Corp., Milwaukee, Wis.* Model 237 crank case pressure regulating valve that protects compressor motor against overload due to high torque loads resulting from excessive suction pressure and possible burnout by modulating flow of refrigerant gas to compressor inlet. Available in 1½ and 3-ton sizes, F-12, the device has adjustable pressure range that can be fix-



ed between 0 to 40 lbs. gauge. Standard connection sizes in 1½-ton valve are $\frac{5}{8}$ ', SAE male flare, $\frac{5}{8}$ ', $\frac{7}{8}$ ' and $1\frac{1}{2}$ ' o.d. solder. 3-ton connection eyes are $1\frac{1}{8}$ ' and $1\frac{3}{8}$ ' o.d. solder.

CHANGE-OVER VALVE—*Detroit Controls Corp., Detroit, Mich.* "Selectaflow" automatic valve for change-over in seasonal hot-cold wet systems, available in two capacities. When desired temperature has been selected, unit automatically provides same temperature winter and summer without further adjustment. Op-



eration of valve is completely mechanical; no pneumatic lines or electrical connections are required. Components are corrosion resistant.

SHUT-OFF VALVE—*Madden Brass Products Co., Aurora, Ill.* Improved flare-to-flare gas shut-off valve provides an exclusive wrench flat fea-



ture for making positive connections that assure leak-proof installations. Normal wrench torque may be applied to valve without distorting or damaging valve plug or body.

INDICATING DRIER—*McIntire Co., Livingston, N. J.* "Indicating Dry Air Breather" for reducing moisture content of atmospheric air entering into materials in storage tanks. All-brass housing of unit is permanently screwed into top of tank and contains a transparent drying chamber filled with an indicating chemical drying agent which changes color gradually as moisture

is absorbed. Drying chamber is inserted and removed without use of



tools. Units are available in three stock sizes with capacities ranging from 500 to 5,000 gallon tank size.

FILTER-DRIER—*Imperial Brass Mfg. Co., Chicago, Ill.* Compact "Golden Torpedo" unit features two desiccant chambers within the shell and a new "Impernyl" filter made of



nylon. Device is of copper and brass construction with end fittings silver brazed to shell, and is supplied charged with PA-400 high capacity silica gel. Unit is available in eight capacities up to 100 cu. in. of drier, with filtering area proportionate to capacity.

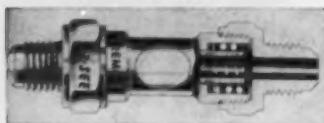
PRESSURE RELIEF VALVE—*Bell & Gossett Co., Morton Grove, Ill.* Model 750 valve has relieving capacity of 750,000 Btu/h and em-



plays a new type silicon disc seat, which is impervious to high temperatures. A very small pressure differential will close valve after pressure is relieved, eliminating possibility of steam flash.

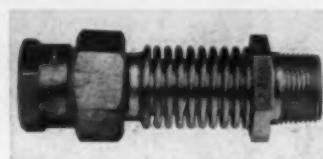
LIQUID INDICATORS—*Remco, Inc., Zelienople, Pa.* "E-Z-See" hermetically sealed indicators for liquid

and liquid flow, with spring compensated gaskets, oval viewing ports, heavy brass bodies, and hexagonal



end fittings. Units are available with $\frac{1}{4}$, $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{5}{8}$ " male x male or male x female flare fittings.

FLEXIBLE NIPPLE — *Techniflex Corp., Port Jervis, N. Y.* All bronze-brass construction flexible nipple with union fitting on one end and male fitting on other end. Flexible portion consists of bronze seamless tubing having deep annular



equipment, unit has one-piece copper shell, leak-proof construction, extra large capacity Monel strainers, and PA 400 silica gel dessicant.

RELIEF VALVES — *Superior Valve & Fittings Co., Pittsburgh, Pa.* Pressure relief valves constructed in accordance with the requirements of the ASME Unified Pressure Vessel Code and carrying the official marking symbol indicating National Board approval and capacity certification. These valves are part of a complete line of pressure relief valves, line and globe valves, driers, filters, and heat exchangers.

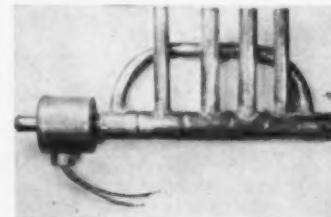
REGULATING VALVES — *Electrimate Co., Skokie, Ill.* Type WT valve controls flow of fluids used in cooling, and Type HT valve controls hot water or low pressure steam. Type WT is available in direct operated sizes of $\frac{3}{8}$, $\frac{1}{2}$, and $\frac{3}{4}$ " F.P.T., and in pilot operated sizes of 1, $1\frac{1}{4}$, $1\frac{1}{2}$, 2, 3, and 4". Type HT (shown) is available in direct operated sizes of $\frac{3}{8}$, $\frac{1}{2}$ and $\frac{3}{4}$ " and in pilot operated sizes of 1, $1\frac{1}{4}$, $1\frac{1}{2}$ and 2". Both models are provided in stand-

convolutions. Standard units are provided in sizes ranging from $\frac{3}{8}$ " to $2\frac{1}{2}$ " I.P.T. Assemblies, with fittings, are available in any length desired.

REFRIGERANT TAP VALVES — *Wagner Tool & Supply Corp., Long Island City, N. Y.* Line of four devices to simplify tapping of refrigerant circuits. "Line-Tap" valve encloses section of tube to be tapped and provides means for charging, discharging or testing without cutting refrigerant tubing. "Line-Port" valve, with T-S connection is used



REVERSE CYCLE VALVE — *Seal-O-Matic, Inc., Coral Gables, Fla.* Device is 4-way, hermetically sealed, solenoid operated, and has minimum



heat transfer and positive pressure seating without bypass. Controls any Freon-12 or 22 system up to $\frac{3}{4}$ " discharge and requires no mounting bracket. Available in 115-230 volt models.



ard 40-degree temperature ranges from 20 to 220 F. Liquid pressure range, in both units, is to 150 lbs., with steam limited to 15 lbs.

when line can be cut and permits a variety of installation methods. "Can-Tap" valve screws on to "Charge-A-Can" disposable container of refrigerant, pierces seal of can, and operates as regular valve. "Watsco" control valve is used as a tool key to open or shut other three valves. It may be used repeatedly, and installed without use of wrenches.

MOISTURE REMOVERS — *Kenmore Machine Products, Inc., Lyons, N.Y.* Adoption of aluminum tube shipping and storage container makes "Moisture Magnet" driers available for replacement use. Previously provided only as original

EXPANSION VALVES — *General Controls Co., Glendale, Calif.* Model V-202 and V-203 thermostatic expansion valves that provide smooth control and high sensitivity as a result of packless construction and



low-friction stainless steel push pins. Easily removable flange-type connectors provide non-loosening, frost-proof connection. Model V-202 uses a semi-liquid charge; Model V-203 is gas charged. Valves have capacities for 2.5, 3.5 and 6.5 tons for Freon 12 or Genetron 12; also 3.5,

NEW OPPORTUNITIES

in the low temperature field
by using the NEW **KRAMER**



THERMOBANK

From the originators of the automatic hot gas defrost system now comes an even better THERMOBANK — the "L" THERMOBANK.

The "L" THERMOBANK incorporates a new heat source for unfailing defrost and completely eliminates any liquid slugging during defrost.

Standard low temperature compressors are used without motor overloading, giving more

capacity per compressor horsepower and reducing the overall installation costs.

Makes possible radically lower freezer temperatures; requires no heated space at the "L" THERMOBANK.

These and many other improvements make possible new economies and new opportunities in the low temperature field.

See working demonstrator at the ALL-INDUSTRY SHOW

KRAMER TRENTON CO. • Trenton 5, N.J.

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& AIR CONDITIONING • NOVEMBER, 1955

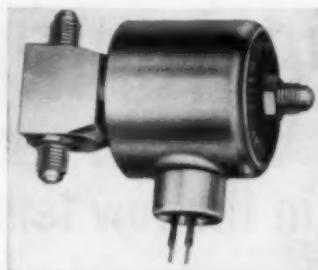
5.5 and 10.5 tons for Freon 22 or Genetron 141. A 60" capillary tube is provided to facilitate installation.

LINE TAPPER — *Mechanical Refrigeration Enterprises, N. Hollywood, Calif.* "Tapaline" device penetrates tubing and, once used, re-



mains as permanent gauge port and valve. One unit fits $\frac{1}{4}$, $\frac{5}{16}$, and $\frac{3}{8}$ " tubing sizes; makes cutting, flaring, or soldering unnecessary.

SOLENOID SHUT-OFF — *Sporlan Valve Co., St. Louis, Mo.* Type 172 solenoid pilot control causes positive shut-off of liquid lines by acting



on thermostatic expansion valve, causing it to close. Several thermostatic expansion valves may be connected to a single Type 172 control, which simultaneously controls action of one valve or the entire plant. Device is used in place of large capacity solenoid valves for shut-off and is available for Freon-12 and 22, Carrene-7, and Methyl Chloride.

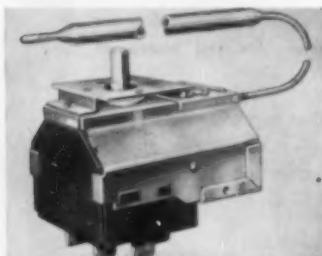
SOLENOID VALVE — *Minneapolis Honeywell Regulator Co., Minneapolis, Minn.* "Soft-Seat" valve, made of Buna N rubber, features increased capacity, replaceable coil, rotating head, and conical spring-loaded plunger which presses valve disc snugly against seat. Units are avail-



able in $\frac{1}{2}$ ", $\frac{3}{4}$ " standard and large sizes; $\frac{3}{8}$ " low-voltage, and 1" low- and line-voltage models.

CONTROLS AND INSTRUMENTS

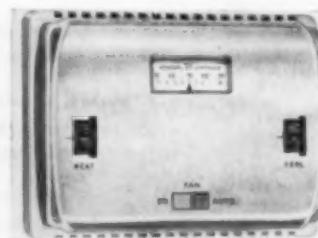
THREE-PURPOSE CONTROL — *Ranco, Inc., Columbus, Ohio.* Model C17 is an air conditioning control instrument for three purposes. Its two switches may be used to operate a compressor and a heating-cooling reverse cycle valve. In this application, an "off" period is automatically available for the compressor during the reversing interval, and the differential between the two switches overlaps. In another application, this two-stage model operates a compressor and a heater for alter-



nate cooling and heating. In its third application, the two switches may operate two compressors when one is in a stand-by capacity, or to delay the start of a second compres-

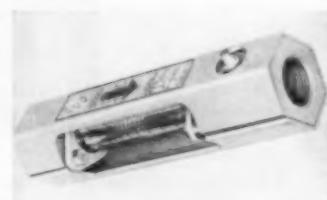
sor when simultaneous starting would cause an overload. The C17 control is available in sizes for 1, $1\frac{1}{2}$, and 2 hp.

HOT-COLD THERMOSTAT — *General Controls, Glendale, Calif.* This thermostat includes separate units



for controlling summer and winter operations of year-round conditioning. Separate dials are used for heating and cooling, but device will automatically switch to type of operation needed. Operation is by mercury switch principle, and contacts are hermetically sealed against dust, grit, lint, and moisture. Case is of stainless steel, satin finish.

FLOW INDICATOR — *Bell & Gossett Co., Morton Grove, Ill.* This liquid flow indicator is for balancing



warm water heating and chilled water cooling systems. "Thermoflow" balancer indicates water flow rate through a circuit up to 10 gpm. Built-in valve adjusts flow rate to desired setting. Thermometer is visible through sight glass. Device reduces time required for balancing; permits easy correction of pipe sizing errors.

VOLT-AMMETERS — *Pyramid Instrument Corp., Lynbrook, N. Y.* "Amprobe Junior" line of high voltage, snap-around volt-ammeters is available in 0-125/250-volt models

Never this with our double
CRIMP*



With the double crimp we put in *both ends* DRYSEAL can arrive in only one condition . . . dry as a bone and clean as a whistle. The double crimping is the final step in manufacturing, immediately following a special cleaning and dehydrating operation, which keeps dirt and moisture from entering the tube. The seal is made in such a way that

DRYSEAL can be passed through any opening large enough for the tube itself. As for bendability—the dead-soft temper of the copper used in DRYSEAL allows you to make the most intricate bends by hand. And its ductility and soft temper make it extremely easy to flare for compression fittings without danger of splitting. Tube sizes— $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D.

The DRYSEAL carton, attractively designed for easy identification, contains one 50-foot coil . . . is easier to handle, light weight, economical and sturdily made to assure protection of the tube in stock and in transit.

REVERE
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.

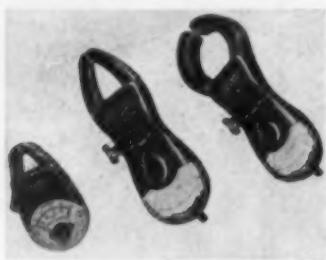
Mills: Baltimore, Md.; Brooklyn, N. Y.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Newport, Ark.; Rome, N. Y.
Sales Offices in Principal Cities, Distributors Everywhere.

* **REVERE**
DRYSEAL
COPPER
REFRIGERATION
TUBE

Circle No. 48 on Reader Service Card

& AIR CONDITIONING • NOVEMBER, 1955

in AC current ranges of either 0-10, 0-25, 0-50, and 0-100 amperes, and in 0-150/600-volt models in AC current ranges of either 0-25, 0-50, or 0-100 amperes. Model 300, for general work, covers six AC ranges up



to 300 amperes, and three ranges up to 600 volts. Tapered probe jaws enable user to reach wires in crowded switch boxes. Models 600 and 1200 are in the same multi-range type, but are designed to handle loads up to 600 and 1200 amperes respectively.

TIMER CONTROL—General Electric Co., Schenectady, N. Y. "Telechron" start-stop mechanism is for over-night and week-end control of air conditioners. In manual operation, conditioner can be controlled in conventional manner. On automatic position, timer can be set for on and off to apply during any 24-hour interval; supplementary skip action will postpone a re-start for a week-end.

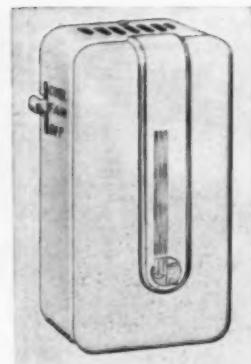
SERVICE THERMOMETER—Marsh Instrument Co., Skokie, Ill. "Serviceman" all-purpose refrigeration testing thermometer is available



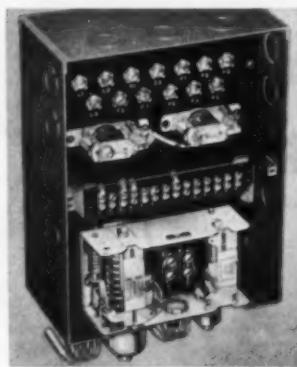
in two standard ranges—from -40 F to 65 F, and from -10 F to 100 F. To protect the armored capillary tubing, the edge of the back reel

plate has been rounded and a new bulb bushing with coiled spring capillary protector has been added at the point of the bulb and capillary tube. Black dial with white numerals and white hairline pointer assure easy reading.

CONTROL CENTERS—Penn Controls, Inc., Goshen, Ind. Series 753 air conditioning control centers provide packaged control of all cooling system functions on either residential or self-contained commercial units. Standard models also provide convenient terminals for connecting a residential heating function. Heating and cooling circuits are segregated. Common applications in resi-



ferential at a minimum. Units are also available with a manual selector switch.



dential field include year-round air conditioning incorporating heating and either single stage or two-stage cooling; also add-on single stage or two-stage cooling units for existing heating systems. Power elements for low side, high side, or both, may be supplied separately so manufacturers may assemble the elements to a cooling unit and charge the system, leaving the control assembly to be attached at a later time.

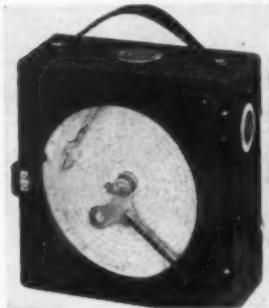
RESISTOR THERMOSTAT—White-Rodgers Electric Co., St. Louis, Mo. This room thermostat has a cooling anticipation device. A small resistor is in parallel with the cycling contacts. When contacts are closed, no current flows through the resistor as it is shorted out by the contacts. When contacts are open, resistor is in series with control transformer and with motor starter, relay coil, or refrigerant valves. Not enough current flows through resistor to operate the low voltage cooling equipment control, but enough will pass to add artificial heat to the sensitive element of the thermostat during the "off" period. This enables thermostat to hold the operating dif-

AIR METER—Anemostat Corp. of America, New York, N. Y. "Anemotherm" portable air meter gives direct readings on air velocity, temperature, and static pressure; is handy for testing air conditioning systems. It measures velocity from 10 to 8000 fpm in 5-fpm increments; temperature to 225 F with accuracy of about half a degree; static pressure in water-inches from 0 to 8 negative, and positive with a sensitivity of better than .05" at lower range. In a convenient case, unit is suited for both field and laboratory work.



TEMPERATURE RECORDER—Weston Electrical Instrument Corp., Newark, N. J. Model 8465 miniature temperature recorder has quick range changing feature. The self-contained instrument operates accurately in any position. Sturdily constructed of die-cast aluminum to provide maximum crush resistance, it has no protruding parts and is unaffected by atmospheric pressures.

Pen operates directly off sensing element without usual multiplying levers. Range changes can be made quickly by inserting new chart, using standard thermometer as reference and adjusting range-chang-



ing screw with screwdriver. Available for operating temperatures from -40 F to 140 F, in 50 and 100-degree spans.

PANEL INSTRUMENTS—*Simpson Electric Co., Chicago, Ill.* Two new lines of rectangular panel instruments are each available in three types: DC meters, RF meters, and AC rectifier-type meters. A 4½" size is available with either shallow or deep core magnet meter movement. A 5½" size is available in those movements and also with an external magnet meter movement. Both sizes can be supplied with sensitivities as low as 10 microamperes, and in two styles of cases.

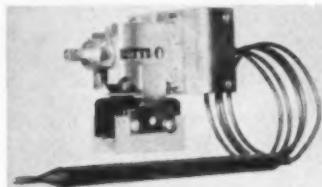
CAPACITOR ANALYZER—*Cor nell-Dubilier Electric Corp., South Plainfield, N. J.* Model BF-70 analyzer for capacitors and resistors locates capacitor opens, shorts, and intermittents; tests high and low capacities; detects high leakage and



high power factor in electrolytic capacitors, and low insulation resistance in paper, mica, and ceramic di-

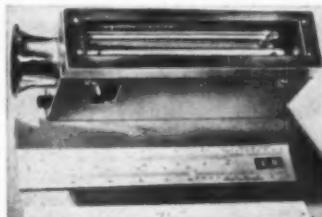
electric capacitors. It has a direct reading calibration scale, and its built-in panel meter is arranged for independent external measurements to 750 volts and to 75 milliamperes.

RETURN-AIR THERMOSTATS—*Cutler-Hammer, Inc., Milwaukee, Wis.* Model TZ (shown) is a single step instrument, and Model TZZ is a double step style, both for instal-



lation in return air stream of self-contained air conditioning units. Single-step unit is used where only on and off operation is required. Double-step type is used where two compressors or other combinations of two operations are desired. Micro switches provide narrow differentials. Rotating knob permits manual adjustments.

HUMIDITY METER—*G. M. M/g. Co., New York, N. Y.* Psychrometer measures relative humidity and tem-



perature. This portable instrument gives fast and easy readings using a simplified slide rule which is provided. Device is designed for extreme accuracy, has provisions to avoid sunlight radiation and motor heat errors. Its thermometers are in matched pairs. Three flashlight batteries furnish power.

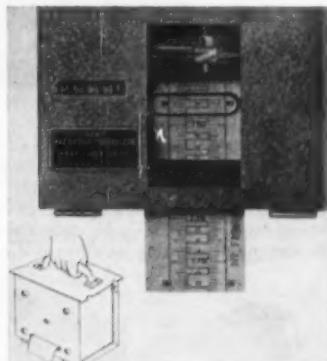
DEFROST TIMER—*International Register Co., Chicago, Ill.* Model T670 time switch for automatic defrosting. As many as 14 defrost cycles a day may be set on a single dial, and each cycle is adjustable for periods from five to 60 minutes. Styles are available for single pole, single throw, with contacts normally

closed; single pole, single throw with contacts normally open; single pole, double throw, with alternating



contacts. Switch has synchronous timing motor, black on yellow dial, and convenient knockouts and mounting holes.

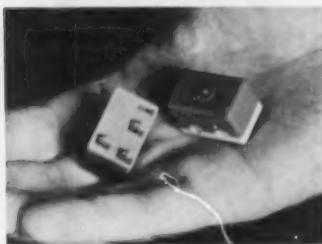
ON-OFF TESTING RECORDER—*Heat-Timer Corp., New York, N. Y.* This heat recorder-totalizer can be especially useful for air conditioning service organizations. By making an on-off time record and continuously providing a cumulative total it permits round-the-clock testing, to compare actual operations with desired pattern, without need for continuous observation. Tape shows duration and frequency of on-off periods. Unit may be used either as portable tester or as permanent attachment for nearby or remote ob-



servations. Standard tape speeds are 1" for 5 minutes, 15 minutes, or 1 hour. Unit may also be used as guide for maintenance schedules.

SNAP SWITCH—*Spencer Thermostat Div., Metals & Controls Corp., Attleboro, Mass.* This extremely small snap switch is designed for uses requiring minimum movement differential and high resistance to

shock and vibration. It is capable of withstanding up to 500 cycles vibration at 10 G's while continuously loaded to within 0.0002" of

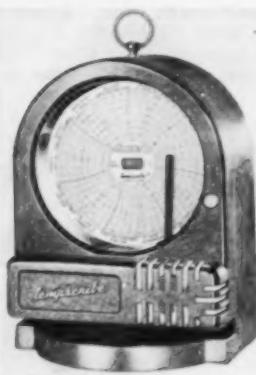


the actuation point. It will operate in a temperature range from -65 F to 350 F. Its rating is 10 amperes at 115 volts.

INDOOR-OUTDOOR CONTROLS
—*Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.* New control system for air cooled residential air conditioners will have separate panels for evaporative and condenser sections.

TEMPERATURE RECORDER—*Bacharach Industrial Instrument Co., Pittsburgh, Pa.* "Tempscribe"

recorder hangs anywhere on wall, to provide time-temperature record on 4" chart. It is suitable for schools, offices, factories, greenhouses, warehouses, refrigerating rooms and similar applications. As pen and actuating component are in hinged, removable door, conversion to differ-



ent temperature ranges is accomplished simply by installing a replacement door. A remote reading recording door is also available.

ON-OFF CONTROL—*Tork Clock Co., Inc., Mount Vernon, N. Y.* This on-off control has 7-day dial sectioned and marked for each day. It per-

mits programming operations without need of manual control to alter schedules. Dial is in two-hour periods. Tabs are inserted in slots for

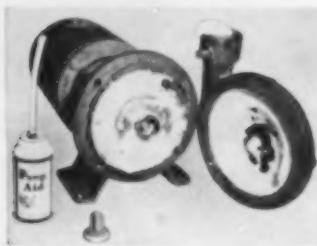


the hours that "on" operations are desired. At all other times, the unit is in the "off" position.

LINE LOAD TESTER—*Hickok Electrical Instrument Co., Cleveland, Ohio.* Portable voltmeter shows electrical circuit capacity under load. Instrument plugs into 105-125-volt line at any outlet. Front panel switch then permits check at loads of 1000 and 2000 watts to show amount of change in voltage.

INSTALLATION AND SERVICE MATERIALS

PUMP PROTECTOR—*Garman Co., Inc., St. Louis, Mo.* "Pump-Aid" eliminates cause of sticking in seasonally operated pumps by chemically stopping corrosion of close toler-



ance surfaces when pump is drained for shut-down periods. Interior surfaces are coated when product is injected under pressure through drain hole into pump housing cavity. Prod-

uct requires no special job preparation to use, adheres to surfaces until flushed off, is water soluble and non-toxic.

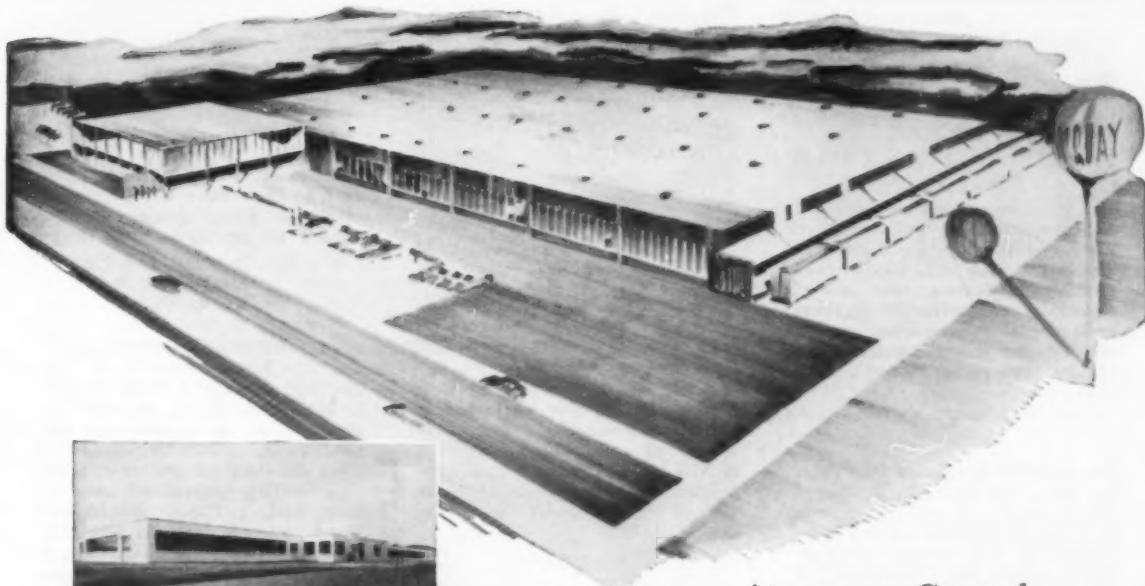
TUBING CAPS AND PLUGS—*Ray S. Scherer & Co., Detroit, Mich.* "Shurclose" rubber or plastic protective closures, for threaded parts and tubing ends, prevent moisture and dust penetration, seal in gases and liquids, and mask pipe ends from paint and preservative finishes. Rubber types are provided in 50 standard sizes as caps for tubing ranging from 1/16" to 2 1/2", or as plugs from 7/16" to 3". Plastic types are available in 19 sizes as caps for tubing ranging from 3/8" to 1 1/2" o.d., or as plugs from 3/16" to 1 5/8" i.d.

COMPRESSOR RACK—*Fine Products Co., Berwyn, Ill.* "Spacesaver" all-metal, adjustable compressor



rack that will accommodate 90% of all compressor units installed. Rack raises units off floor, is cross-braced at both ends and back, and will ac-

McQuay INC. ...NOW IN FULL PRODUCTION



Faribault Plant
4th St. and Park Ave.
Faribault, Minnesota



General Offices and Warehouse
1600 Broadway St. N.E.
Minneapolis, Minnesota

...At our new Grenada,
Mississippi plant...as well as
at Faribault, Minnesota

McQuay's new Grenada, Miss. plant—167,000 square feet of floor space in which we installed the most up-to-date machinery and equipment known to the industry—has been in production since our formal opening Oct. 3, 1955. To all of you who were able to pay us a visit, "thanks for coming."

McQuay air conditioning and refrigeration coils as well as unitary equipment, produced at Grenada and at our Faribault plant will be on display at the industry exposition in Atlantic City, N.J. Nov. 28—Dec. 5. We think you will be as interested in seeing these famous Ripple-Fin products as we are proud to show them.

SEE YOU AT THE INDUSTRY SHOW, BOOTHS 306-307!

Write McQuay Inc. for
engineering assistance
on any coil problem.

McQuay

INC.



AIR CONDITIONING
REFRIGERATION
HEATING

1643 Broadway St. N.E., Minneapolis 13, Minnesota

commodate two compressors vertically located in less space than normally occupied by one. Unit measures 39 1/4" long, 25 1/8" wide, and 38" high.

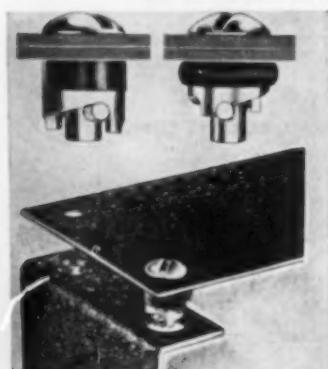
FLEXIBLE CONNECTORS—*American Brass Co., American Metal Hose Branch, Waterbury, Conn.* "Flexipipe" connectors are easy to install in cramped spaces and con-



sist of seamless flexible phosphor bronze tubing, with wire braid covering and brass NPT male fittings attached to each end. Can be used to dampen vibration; take care of expansion and contraction in risers and supply lines; connect outlets which do not line up; and compensate for other piping "travel".

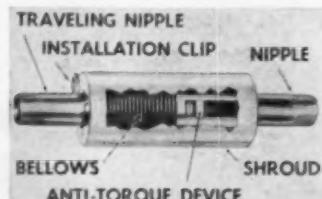
OIL ADDITIVE—*Sealed Unit Parts Co., Inc., New York, N. Y.* "Supco 88" a special oil additive formula that reduces wattage on new compressors by 4%. Prevents overheating of motors and compressors; is helpful in freeing stuck bolts, screws, shafts, and bearings. Can be used in sealed units, small and large tonnage open type units, blowers and motors.

QUICK-ACTION FASTENER—*General Tire & Rubber Co., Akron, Ohio.* Quick-release "Vibrex" panel-to-base fastener and vibration isolator that compensates for misalignment between panel and base, and



can be used for fastening metal, plastic, glass or composition board. Installation requires no separate receiver unit. Locking action results from controlled expansion of special rubber sleeve which exerts pressure of over 150 lbs. A half-turn locks or disengages the unit, which is available in a variety of types.

EXPANSION COMPENSATOR—*Flexonics Corp., Maywood, Ill.* Model H "Flexon" expansion compensator, for vertical heat-riser lines, features a two-ply stainless steel bel-



lows as the pressure carrier, built-in anti-torque device, and steel housing, with steel pipe nipples on both ends. Unit may be placed in walls without need for access panels or special construction. Available in NPT sizes of 3/4" to 3", the compensator will take pressures up to 150 psi and will absorb line expansion of 1 1/2".

ROUND CORNER GASKET—*Jarrow Products, Inc., Chicago, Ill.* "Curvall" Series 400 rubber gasket, for late model refrigerator and freez-



er boxes, eliminates need for notching gaskets when applying around corners. Fits all curves, bends, or angles; goes on easily and smoothly; does the same job as pre-formed frame gaskets but costs less. Available in 11 different sizes for universal application.

CAULKING CORD—*J. W. Mortell Co., Kankakee, Ill.* "Mortite" white caulking cord that is suitable for most refrigeration sealing needs.

Rope-like strands, 3/16" in diameter, stay permanently soft, retain consistency of modeling clay indefinitely. Cord is non-staining, and can be painted over if desired. Recommended for sealing breaker strips



and joints in air ducts, for plugging up tube entry holes in refrigeration cases, for filling openings around window air conditioners and many other uses.

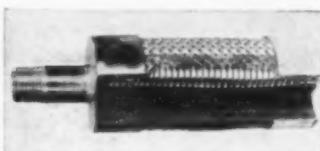
SCALE REMOVER—*Chemical Solvent Co., Birmingham, Ala.* A new 10-pound package of "Ultra Solvex" is now being made available for use in small air conditioning systems. Product eliminates hard-to-remove silica scale and other deposits from cooling towers and evaporative, shell, and tube condensers. Plastic scoop is included with container for accurate measurement of material when applied to system. Product also available in tablets.

SPRAY NOZZLE—*Thermal Agency, Houston, Texas.* Aspirating feature of "Aspir-Jet" cooling tower spray nozzle provides greater efficiency by increasing water breakup and dis-



tribution and gives better air-to-water mist contact at lower than normal pressures. Nozzles are formed of butyrate plastic, will last indefinitely, and are highly resistant to corrosion and erosion.

"HAMMER" ELIMINATOR—*Tech-niflex Corp., Port Jervis, N. Y.* Seamless convoluted metal hose unit for eliminating "hammer" in water pipes. Unit takes advantage of resiliency of its materials in combina-



tion with compressibility of air pockets to reduce line pounding. Sizes are available for $\frac{1}{2}$ " and $\frac{3}{4}$ " male I.P.T. connections.

CONDENSING UNIT RACK—*Brunner Mfg. Co., Utica, N. Y.* "Space-Saver" rack designed to accommodate up to four open-type refrigeration condensing units in any combination of sizes up to 5-hp. Of 4" cross channel construction, the rack can be completely serviced from the front, permitting stacking on both sides. Has improved control system, allowing either individual or gang cut-off and start; is completely wired, and requires minimum on-job wiring or plumbing installation work.

SEALING COMPOUND—*Crane Packing Co., Chicago, Ill.* "Plastic Lead Seal" pipe thread compound that is non-hardening in threads of water, refrigerant, or similar pipes, but withstands pressures up to 6000 psi, and temperatures to 600 F. Compound is dispensed from squeeze-type, polyvinyl plastic tube that withstands heavy impacts or pressures and has friction-type cap for reliable tightness.

ANTI-SCALE DEVICE—*Heller Laboratories, Leonia, N. J.* "Hydron" non-chemical process for pre-



venting scale from forming on water pipes of boilers, evaporators, condensers and similar equipment.

Process causes minerals in water to deposit as a fine, loose sludge that can be removed by normal blow-down. Eliminates need for water softener or chemicals; can be installed by plumber or maintenance man; is of sturdy construction, and has no anodes or parts to wear out.

chemical reaction creates special pigment which stops further rust formation. Primer is recommended for large and small jobs, with applications in refrigeration and air conditioning.

CONDENSER CLEANER—*Anderson Chemical Co., Macon, Ga.* An acid detergent in dry form for removal of scale, rust, and slime from condenser tubes in all types of condensers while equipment is in operation. Product removes scale in 2 to 15 hours, and gives off no objectionable fumes to irritate workmen or corrode metal parts.

VIBRATION MOUNTING—*Vibration Mountings, Inc., Elmhurst, N. Y.* Unit is of telescopic construction,



fully enclosed in semi-steel housing, and features steel spring mounting with chrome vanadium springs for high isolation efficiency. Device offers increased carrying capacity without increase in physical size, is pre-set at factory, and may be adjusted at any time in the field.

FREEZER DOOR LATCH—*Kason Hardware Corp., Brooklyn, N. Y.* No. 187 one-point, edge-mount latch and hinge for super freezer doors features a micrometer adjustment strike to compensate for wear of gasket. Latch is suitable for all doors, 5" thick or greater, whether opening from right or left.

RUST INHIBITOR—*Champion Bronze Powder & Paint Co., Chicago, Ill.* Rust proof primer for treating metals already rusted. When primer is applied to rusting surface,

VIBRATION MOUNTING—*T. R. Finn & Co., Hawthorne, N. J.* Product consists of a pair of rubber-in-shear isolators mounted at an angle between a semi-steel base and cover. Unit isolates vibration, provides shock and overload control, and re-



duces transmission of sound to or from mounted equipment. A pre-loading nut on mounting controls degree of shock protection. Loaded overall height of mounting is 3" and load capacities range from 500 to 2500 lbs. per mounting.

WATER CONDITIONER—*Service Industries, Philadelphia, Pa.* PN-700 chemical conditioner makes water "wetter" by increasing its penetrating and dissolving power and is useful in cleaning air conditioning filters. One package dissolved in each 10 gallons of water used daily in system, removes slime and algae from coils and reservoirs and keeps equipment clean.

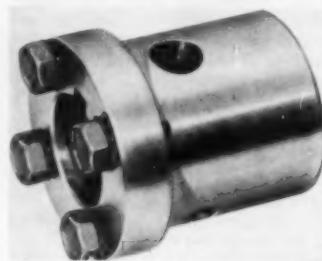
WATER CONDITIONER—*Calgon, Inc., Pittsburgh, Pa.* "Micromet" phosphate plates are placed in plastic mesh bag which is hung in water spray of cooling tower or evaporative condenser for controlling scale



and corrosion in system. No cutting of water lines or other plumbing is necessary. One or two bags for each 20-ton capacity will last about six months. Companion items are an inhibited acid scale remover in powder form, and Algaecide pellets.

PLASTIC DUCT TAPE—*Minnesota Mining & Mfg. Co., St. Paul, Minn.* No. 474 aluminum colored plastic tape for joining and sealing cold and warm air ducts in home, industrial, and air conditioning installations. Tape is flame resistant, will not support combustion, and only one wrap or layer is necessary for each sealing application. Designed for use on round, square, or flexible metal ducts, the tape features high stretch, a 4-mil thickness, and withstands temperatures up to 240 F.

V-PULLEY BUSHING—*Maurey Mfg. Corp., Chicago, Ill.* Type "XBF" bushing for increasing speed



of compressor-condenser units by permitting installation of larger V-drives of greater horsepower rating and making it easy to replace a 2-belt drive with a 3-belt drive. Unit may be used with 1, 2, and 3-groove combination A and B pulleys on all high pressure suction and blower applications from 10 to 16" diameter.

EXPANSION JOINT—*Clifford Mfg. Co., Waltham, Mass.* Unit is constructed around a hydraulically formed, seamless bronze bellows and is designed to compensate for thermal expansion and misalignment in piping systems. It also reduces vibration and noise transmission. Casting is of corrosion resistant seamless brass tubing.

WELDED STEEL TUBING

Rochester Products Div., General Motors Corp., Rochester, N. Y. "GM tubing" in long random coils that are leak-tested and available with exclusive "Fuse-Kote" or plain finish. Random length coils afford economies in wrap around applications for freezer units by eliminating "short end" waste of material that results from use of coils cut to specific lengths.

TOOLS AND SHOP EQUIPMENT

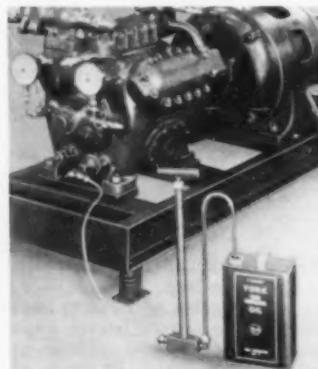
TUBE BENDERS—*Imperial Brass Mfg. Co., Chicago, Ill.* "Blue Dot" lever-type benders for soft or hard tubing require no clamp. Device is



of open-side type which makes it possible to slip it over tubing at exact place where bend is desired. Short radius bends can be made at any angle up to 180°. Each tool handles one size of tube ranging from 3/16 to 3/4".

TWO-WAY RADIO—*Radio Corp. of America, New York, N. Y.* Radio conversation units ("Carfone-450") for trucks and cars, with companion units for business headquarters, permit easy voice-contact between main office and service men and salesmen. Both units have tamper-proof pre-tuning at factory and operate on any frequency in the 450-470 mega-cycle band. They use 6 or 12-volt current, and are of compact size.

OIL CHARGING PUMP—*York Corp., York, Pa.* This pump, for charging oil by hand pressure into Freon or ammonia compressors, eliminates necessity for pumping a vacuum on crankcase and prevents admission of air into crankcase. Air in crankcase would eventually enter



condenser and cause less efficient operation. Compact pump unit fits any toolbox and can be used with 1 or 5-gal. cans. Suction tube extends nearly to bottom of can, preventing air from entering system while tube is immersed. Threaded outlet, cap-protected when not in use, is designed to fit standard 3/8" charging connection.

LIFTING HAND TRUCK—*Fairbanks Co., New York, N. Y.* Model A-2 hand truck is for hauling and positioning window coolers and other appliances at above-floor levels. One man can install window air units by using the built-in lift device. The truck is also useful on stairways, and for ordinary level hauling. Its upward lift, gear-operated, extends to 43" above floor.



Unit folds compactly for between-jobs storage and has a total weight of only 49 lbs.

OXY-ACETYLENE OUTFIT—*Linde Air Products Co., Div. of Union Carbide & Carbon Corp., New York, N. Y.* There is a double duty blowpipe with this new "Prest-O-

Lite" oxy-acetylene portable outfit. For light to medium welding and cutting, the blowpipe uses interchangeable welding and cutting tips, and needs no special attachments. It heats, blends, solders, brazes, welds,



and cuts. Standard outfit welds up to $3/16$ " and cuts through $3/8$ " steel. Additional tips are available for welding up to $3/8$ " and for cutting to 2". Outfit includes blowpipe, one cutting and three welding tips, pressure regulators, double hose, friction lighter, goggles, and wrench.

AIR-ACETYLENE GUN—Velocity-Power Tool Co., Pittsburgh, Pa. "Torch-o-matic" air-acetylene gun has trigger action and is used for



soldering, sweating, brazing, pre-heating, melting, and maintenance. It lights by pulling trigger, and eliminates fire hazards by extinguishing flame when trigger is released. Adjustable pressure regulator is included. Complete outfit also has tube, nozzle, hose, clamps, pressure gauges, and package of 40 flints.

DUCTWORK AID—Lamp Snatchers Co., Chicago, Ill. An adjustable



boom raises duct, pipe, or conduit and holds it at ceiling level while permanent fastenings are applied.

Manually controlled rod has clamp at one end to grip pipe, and vacuum cup at opposite end for handling duct. Adjustable upright rod is available up to 30' length.

SEALED UNIT OPENER—Frankell Mfg. Co., New York, N. Y. This is a semi-automatic machine to open any size or shape of hermetic compressors, up to 20" diameter, regardless of position of the weld. Op-



erator places compressor on turntable, sets clamp, then positions grinder to contact with weld. Grinding continues until automatic stop. Metal cabinet with shatterproof windows covers operation. Machine handles round, oval, and odd-shape compressors, and is delivered ready for plug-in.

CONDENSER CLEANER—Thomas C. Wilson, Inc., Long Island City, N. Y. "Blo-Gun" device removes soft obstructions in tubes of condensers. It is designed especially for dealing with mud, algae and other marine growths, by forcing plug-type or brush-type projectile through tubes.



Air or water pressure is applied through nozzle. Plugs and brushes may be used repeatedly and are furnished in diameters from $1/2$ to 1". Gun weighs only 2 lbs. It has bronze nozzle and rubber spray shield.

GEARED WRENCH—Bonney Forge & Tool Works, Allentown, Pa. There is a 4-to-1 ratio on the geared head of this wrench for heavy assembly and disassembly work. The unit is designed for use with ratchets, torque wrenches, sockets, and attachments. Torque is produced through



planetary gears. Use of this wrench makes tightening of threaded parts to specific torque accurate. Known ratio permits its use as a multiplier of other torque wrenches.

LEAK DETECTOR—Turner Brass Works, Sycamore, Ill. "Halide" gas leak detector finds leaks in all non-combustible Halide refrigerants. It reacts to gas by easy-to-see changes in color and intensity of flame. Device weighs only 3 lbs., and is 17"



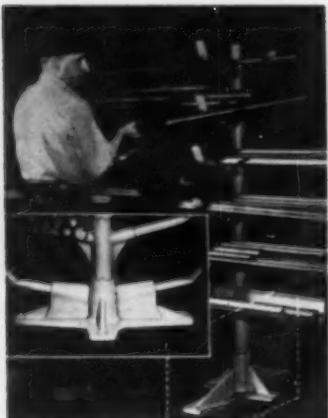
high. Fuel tanks are disposable. Search hose is extra long. Powerful suction draws fumes to reaction plate. Single valve controls flame.

TAILGATE HOIST—St. Paul Hydraulic Hoist Co., Wayne, Mich. "Frate-Gate" tailgate hoist for 1½-ton or larger trucks uses hydraulic power for its capacity of 2000 lbs. It makes one-man loading and unloading practical, uses single lever controls. Levers operate a valve which activates all movements



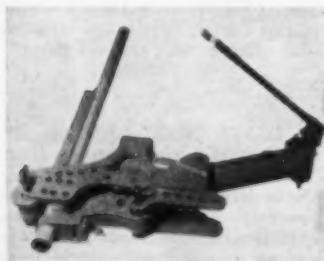
through a single double-acting cylinder. Dual safety latches lock the gate securely at truck bed.

BASE BRACKETS — *Brown Engineering Co., Reading, Pa.* These brackets for stock racks increase storage capacity for pipe and tubing. Slipped over base flanges of stock



racks and secured by a single bolt, the base brackets provide supporting arms 10" above floor. Since the stress is borne almost directly by the floor, the pay load is increased by thus supplementing upper arms of new or existing racks. Racks are easily moved when unloaded, as they require no additional bracing or floor fastening.

HYDRAULIC BENDER — *Tal-Bender, Inc., Milwaukee, Wis.* This "One-Shot" device uses hydraulic power

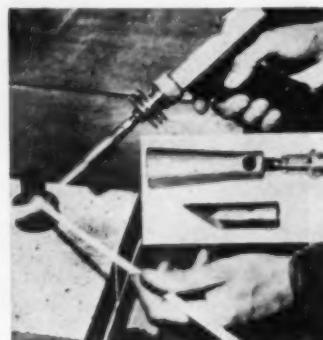


for bending pipe and tubing. Unit includes frame which enables user to bend hard and soft copper, rigid conduit, and similar items to 90 and 180° angles. Eliminates need for several types of benders to complete a single job.

MASONRY DRILL — *Super Tool Co., Detroit, Mich.* "Core-Vent" carbide masonry drill uses milled slots instead of spiral flutes; in 1" size will penetrate 4" of concrete and stone in less than 50 seconds, leaving accurately-sized hole. These

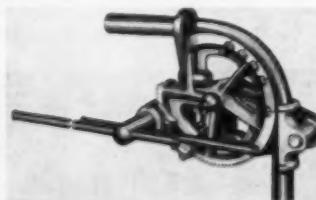
drills are available in diameters from $\frac{1}{4}$ to 6", and removable shanks are provided on all sizes over $\frac{5}{8}$ ". Extra large carbide inserts aid fast cutting and assure long service life. Company also manufactures spiral-type drills.

HAND HEAT TOOL — *Fire Gun Sales Corp., Denver, Colo.* "Fire Gun" hand operated heat tool uses propane gas to attain a heat range of 4000 to 117,000 Btu/h. Trigger action makes it suitable for soldering, tinning, brazing, thawing, pre-heating, paint removal and other uses.



Flame at 3650 F burns clean with no carbon deposit. Basic kit includes a heat concentrator tip, soldering iron, hose, regulator, pressure gauge and steel carrying box.

TUBE BENDER — *Holsclaw Bros., Inc., Evansville, Ind.* Black iron pipe, stainless steel, and hard or soft copper tubing may be bent with this device. This company manufac-



tures a line of hand bending tools for use on tube diameters ranging from $\frac{3}{8}$ to $1\frac{1}{8}$ ".

ACETYLENE TORCH KIT — *Ransome Co., Emeryville, Calif.* A complete acetylene torch kit for multi-purpose operations, this outfit is designed especially for silver soldering in refrigeration servicing and installation, for sheet metal jobs, and for

pencil-flame electrical work. Kit includes two handle assemblies, seven heads, brass regulator, hose, and



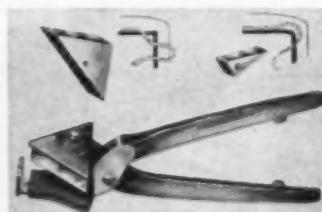
fittings. Bunsen burner to work on torch handle or as separate unit is also available.

DRILL ATTACHMENT — *Little Beaver Industries, Inc., Willoughby, Ohio.* This attachment for portable electric drills saws wood, plastic or



plasterboard, cuts metals including sheets without a starting hole, and works on metal lath, wood plastics and other materials. Other accessories include files, chisels, gouges, and jig-saw blades.

GASKET NOTCHER — *Wagner Tool & Supply Corp., Long Island City, N. Y.* These pliers have interchangeable cutters for notching gaskets to



fit square or rounded refrigerator corners. Center indicator permits cut to be positioned accurately. Adjustable guide governs length of notch.



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Commercial Refrigeration & Air Conditioning

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AIR SYSTEM CLEANER — *Premier Co., St. Paul, Minn.* "Spic-Span" portable vacuum cleaner (Model 950H) for heating and air conditioning systems has non-pleated



ed filter to avoid overlapping and clogging, and to allow cooler motor operation. Unit has $\frac{1}{2}$ -hp motor, sealed in lubricant. Tank capacity is $\frac{1}{2}$ bushel. Cleaner is 19" high and has a 30' cord. It uses throw-away filters and rolls on casters.

TORCH KIT — *Otto Bernz Co., Rochester, N. Y.* "Bernz-O-Matic" propane-fueled torch kit contains

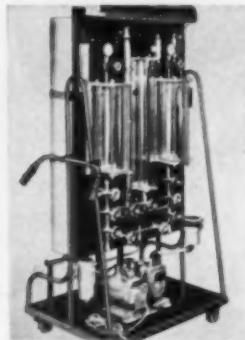


disposable fuel cylinder, pencil flame burner, utility burner head, flame spreader, and soldering kit. It is useful for repair and maintenance jobs. All five items are packed in acetate window box.

SERVICE TOOLS — *Duro Metal Products Co., Chicago, Ill.* There are 72 special tools for refrigeration and air conditioning services in this set. All are heat-treated chrome alloy steel, chrome plated and polished. Included are tools to bend, cut, and

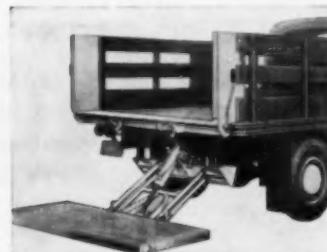
flare tubing; a reversible ratchet; valve stem and packing gland "T" wrenches; and flare nut wrenches in straight or offset type. Complete set is packed in steel box with handy lift-out tote tray.

PORTABLE CHARGER — *Kinney Mfg. Div., New York Air Brake Co., Boston, Mass.* A portable unit for evacuating and charging refrigerants and their supplementary liquids such as alcohol and oil, this device



is designed to restore equipment's original performance standards. Its vacuum pump is powerful enough to dehydrate and degas cooling units to correct levels. Entire assembly moves on casters.

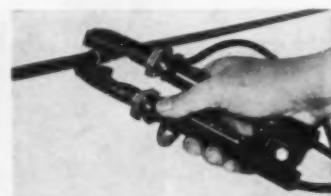
TRUCK LIFT GATE — *Anthony Co., Streator, Ill.* Model 144 truck lift gate for 1000-lb. loads, is designed for $\frac{3}{4}$ and 1-ton stake and van trucks but may be applied to



larger sizes. It has hydraulic power, is manual-spring closed, and comes in either ramp or square-end general purpose styles. Other models handle from 800 to 4000 lbs.

SOLDERING PLIERS — *Wassco Electric Products Corp., Joliet, Ill.* Current enters jaws of these electric pliers to provide heat for soldering tubing joints, wire and cable. Used

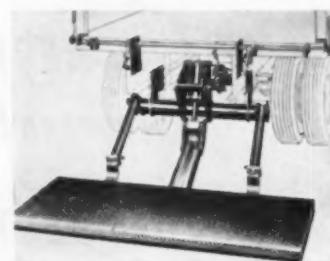
with company's 1000-watt power unit, this device combines safety with easy use. It is designed for sol-



dering fittings up to $1\frac{1}{2}$ " but has other applications. Push-button heat control is in handle. Pliers will solder $\frac{1}{2}$ " fitting in 20 seconds.

CABLE STAPLER — *Heller Co., Cleveland, Ohio.* An automatic stapler for fastening electric cable and copper tubing shoots a heavy staple with each trigger squeeze. Operator can guide material with one hand while stapler is held by other hand.

ELEVATING END GATE — *Gar Wood Industries, Inc., Wayne, Mich.* Low-cost elevating end-gate for de-



livery trucks is designed for trucks of $1\frac{1}{2}$ -ton or larger size, and handles loads to 2000 lbs. Gate has full power operation, and safety controls at all stages of operation.

TAILGATE LOADER — *Ven Corp., Los Angeles, Calif.* This tailgate loader fits $\frac{3}{4}$, 1, and $1\frac{1}{2}$ -ton stake or van trucks. It is hand operated but requires only light pressure for its 1000-lb. capacity. It is in sizes to fit any truck body up to 8' wide.

STAIRWAY WALKER — *L-S Heating & Engineering Co., Philadelphia, Pa.* A magnesium hand truck for moving air conditioners or refrigeration units on stairways. It handles up to 350 lbs., and "walks" up a stairs when its handles are pumped.

SPECIALTY EQUIPMENT . . .

Continued from page 61

DRINK DISPENSER—Dunkhill Soda Fountain Corp., Brooklyn, N. Y. "Mixomatic" units have dispensing tower with two, three, or four arms for different drinks, a revolving transparent display sign located at



top of tower, and automatically provides correct quantity of syrup and constant carbonated water pressure. Two-beverage size has $\frac{1}{3}$ -hp condenser and produces 150 drinks per hour. Three and four-beverage sizes have $\frac{1}{2}$ -hp condenser and serve 300 drinks per hour. Top is stainless steel. Sides are baked enamel or stainless steel.

ICE MAKERS—Yates-American Machine Co., Beloit, Wis. Five Lipman "Ice Boy" models with capacities of from 1000 to 4000 pieces per



day and with storage areas proportionate to size. Machines have selective control to manufacture ice in sizes to match drinks, and are fin-

ished in grey color or stainless steel. Complementing this line is Lipman ice crusher which can deliver a pound of crushed ice per second, in fine, medium, or coarse sizes.

MILK SHAKE MACHINE—Sweden Freezer Mfg. Co., Seattle, Wash. Necessary controls for Model M1-190 "Frigidmixer" are housed in a small, stainless steel, removable box that plugs in like a radio tube and is located under a lift-up hood. All switches have been removed from front of machine, and operation is



accomplished through an electricaly-operated footswitch which opens serving gate and controls feeding of fresh mix into cylinder, leaving operators hands free to hold two milk shake containers at one time.

RECESSED WATER COOLER—Sunroc Corp., Glen Riddle, Pa. Compact "RP" panel unit for under-



counter or other out-of-way installation is 21" high, has capacity of from 6 to 17 gph, and may be connected to single or several dispensing outlets, even on different floors. Available in either air-cooled or water-cooled models with heavy welded steel cabinets.

MOBILE ICE UNIT—Gennett & Sons, Inc., Richmond, Ind., and York Corp., York, Pa. Model DER-2B, "York" ice-maker, mounted on stand, delivers ice into insulated three-wheel "Gennett" cart. When cart is full, thermostat stops production. Second cart may be used



while first is serving another area. Ice-maker produces up to 300 lbs. of ice a day. Carts are in 50, 75, 150, and 250 lb. sizes.

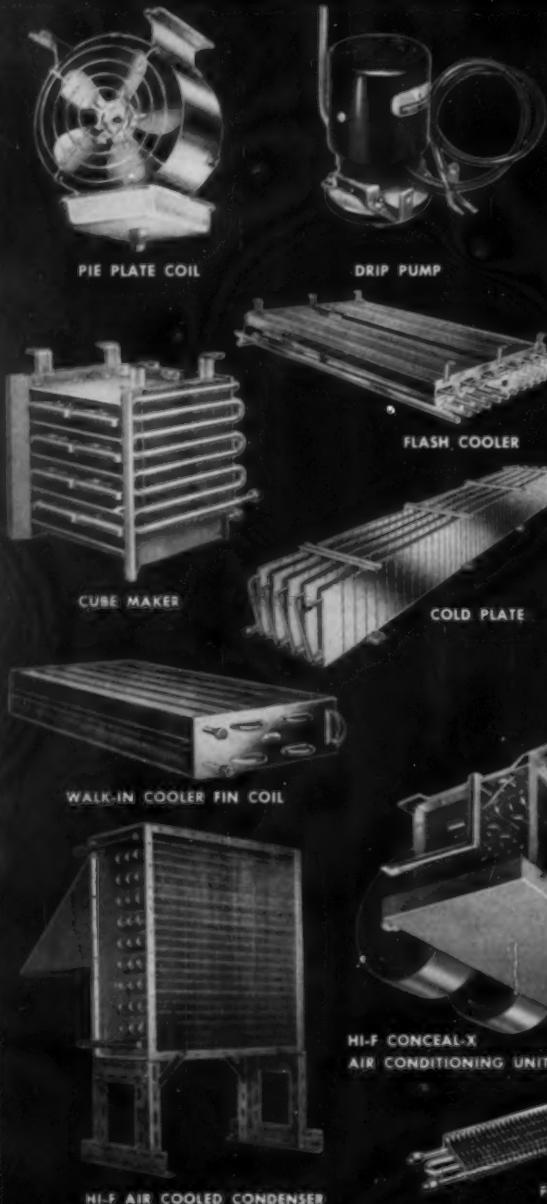
LARGE ICE MAKERS—Carrier Corp., Syracuse, N.Y. "Flakemaster" and "Chipmaster" units, with capaci-



ties of 1,000 and 2,000 lbs. per day, designed to meet large capacity requirements in markets, hospitals, hotels, and similar establishments. "Flakemaster" is provided with storage bins of 500 lbs. capacity and either one or two access doors. "Chipmaster" utilizes 250 lb. capacity bin. Combination cuber and crusher units are also available.

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Today, in the commercial refrigeration and air conditioning industry, the name VIKING in copper tubing has also become synonymous with *strength* and *durability*. Through its quality and precision VIKING has set a standard for the industry . . . and VIKING craftsmen, true to the *tradition* of their namesakes, continue to develop the very finest in copper tubing . . . a tubing worthy of the name VIKING!



VIKING copper tube co.

CLEVELAND 10, OHIO

PRECISION DRAWN SEAMLESS COPPER AND ALUMINUM TUBING

EXTRA STRENGTH

The proper kind of strength and ductility is vital in tubing used for refrigeration and air conditioning purposes. Copper tube possesses these qualities to a far greater degree than other types of tubing. Its uniform temper assures trouble-free fabrication.

EXTRA FLEXIBILITY

Viking Copper Tube is soft and pliable, yet exceedingly rugged. It saves time and labor because it can be coiled, formed, flared and expanded quickly without danger of fracturing or splitting.

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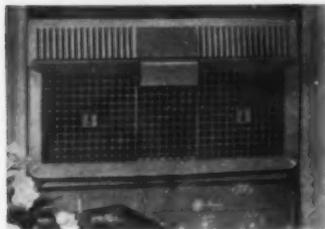
NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

CLEAN AND DRY

Viking Copper Tube is triple-sealed at the ends, stays dry and absolutely dirt-free. The seal is made to pass through any opening large enough for the tube itself. It's clean . . . it's bright . . . it's dry!

ROOM AIR CONDITIONERS

YEAR-ROUND WINDOW UNITS
—*Mitchell Mfg. Co., Chicago, Ill.* "Custom" series of 1956 room air conditioners consists of $\frac{3}{4}$ -hp and 1-hp models available with either reverse cycle or electric resistance heating. Reverse cycle units will warm same size room they cool. Compact design fits 27" windows;



flush mounting eliminates projection into room. Single knob control provides seven different operational conditions. Adjustable louvers. Thermostat control with manual position which permits constant cooling. Evaporator coil of $\frac{1}{2}$ " tubing has overall size of 260 sq. in. Three-row condenser coil has overall size of 275 sq. in. Blower has capacity of 235 cfm.

WINDOW COOLER LINE—*Frigidaire Div., General Motors Corp., Dayton, Ohio.* Super series (illustrated) available in $\frac{1}{3}$ and $\frac{1}{2}$ -hp

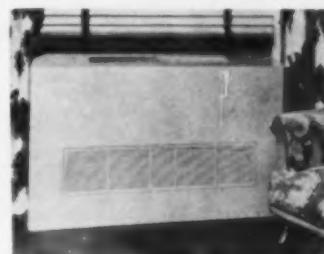


capacities for installation in either casement or double-hung windows. Deluxe series includes $\frac{3}{4}$ and 1-hp models featuring two separate cooling systems providing two-step capacity control. Air distribution controlled by adjustable grille at front.

Simple controls concealed behind flip-open panel below grille. All units can be installed flush with drapery if desired.

FLUSH-MOUNTED COOLERS—*Radio Corp. of America, Camden, N.J.* Window air conditioner series offers units in $\frac{1}{3}$, $\frac{3}{4}$, 1 and 1½-ton sizes. Built-in electrical heater is standard equipment in the three larger sizes. All units have 2-speed cooling system utilizing twin fans. Automatic thermostat is standard equipment. Finger-tip push button controls concealed behind panel on front of unit. Night light turns on when panel door is opened.

CONSOLE AIR CONDITIONER—*York Corp., York, Pa.* Self-contained unit with outside air intake designed for installation flush with



outside wall. Can be placed anywhere against outside wall, eliminating interference with window or sill. Connects directly into conventional steam or hot water heating pipes. Quiet operation and low installation and operating costs are among advantages claimed.

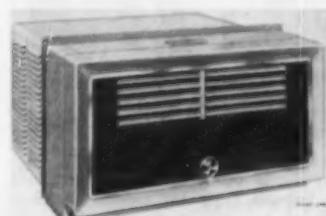
CONDITIONER LINE—*O. A. Sutton Corp., Wichita, Kans.* Four models of "Vornado" $\frac{3}{4}$ -ton window type air conditioners. For double-hung windows, deluxe, standard, and reverse cycle types are avail-

able, while a casement window unit (illustrated) is available for this type of installation. Intake and recirculated air is forced over fiber-glass filters for removal of foreign elements. Motor and compressor mounted on springs and rubber to insure silent operation. Low-speed motor, squirrel cage blower, and



one-piece condenser fan. Deluxe model features push button controls, winter warmer, and thermostat as standard equipment. Can be flush mounted with window or "all in" the room.

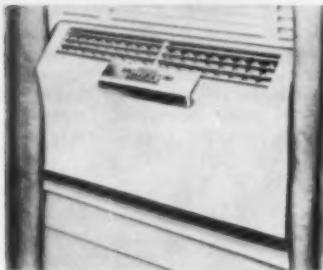
ROOM CONDITIONERS—*Kelvinator Div., American Motors Corp., Detroit, Mich.* RAC series of win-



dow and cabinet type air conditioning units for residential use. "Furniture-fashioned" drop fronts with gold tooled leather texture conceal

the air louvers when unit is not in use. Eight models include two with auxiliary heating. Sizes range from $\frac{1}{2}$ to 2 hp. Some models have adjustable louvers, sliding door covers, automatic pushbutton controls, and selector chart. Standard as well as deluxe units available.

CORROSION-PROOF UNITS — *United States Air Conditioning Corp., Minneapolis, Minn.* Ten-model line of window type air conditioners in $\frac{1}{2}$, $\frac{3}{4}$, and 1-ton cool-



ing capacities with base pan and other structural parts of aluminum to prevent rusting and corrosion. Both electric strip heating and reverse cycle operation available. Control panel located behind hinged access panel on front of cabinet. Deluxe models include push-button temperature control.

ROOM AIR CONDITIONER — *Carrier Corp., Syracuse, N.Y.* "Roomette" air conditioner that



need not be located anywhere near a window. Air for refrigerant condensing comes through bottom instead of back of unit, and can be drawn from a well ventilated basement or crawl space or through a short duct to an outside wall. All controls and grilles are located on

front panel, leaving marproof top clear. $\frac{3}{4}$ -hp, 115-volt model measures 27" high, 15" wide, 28" deep.

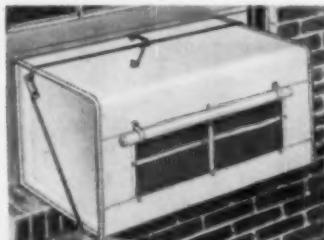
CUSTOM ROOM UNIT — *General Electric Co., Louisville, Ky.* Model R102M 1½-hp, 230-volt model is designed to cool areas up to 1000 sq. ft. and has dehumidification capacity of 4 pints per hour. Can be installed either flush with inside wall or with interior projection. Controls concealed behind panel at cabinet base. Three rotator air directors, each individually adjustable, are located behind front grille. Cleanable aluminum filter. Choice of blonde or mahogany finish.

ADAPTABLE UNIT — *Philco Corp., Philadelphia, Pa.* "All-in-One Windowette" room air conditioner with console cabinet which can be installed in several basic ways. Fits double-hung or casement windows, and through-the-wall openings. Powered by $\frac{3}{4}$ -hp unit with automatic



temperature control. Cabinet dimensions are 33 x 23½ x 13". Wrought iron stand available as accessory. "Comfortimer" control starts unit at pre-selected time and has skip-day arrangement for starting after weekends.

CONDITIONER COVER — *Ero Mfg. Co., Chicago, Ill.* Sturdy and convenient all-weather cover for protecting window-type room air



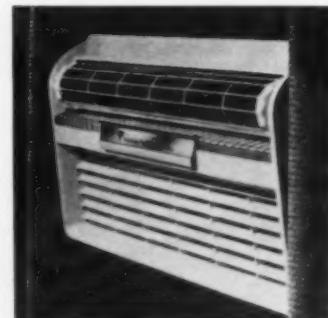
conditioning units against winter corrosion and deterioration. Made of tough 22-ounce vinyl plastic coated material. Will withstand water, fire or cold without mildew or cracking. Available for all popular makes of units in both closed and exhaust-flap styles.

CONSOLE CONDITIONER — *Remington Corp., Auburn, N.Y.* "Consolesaire" model has flexible mounting arrangement which makes it

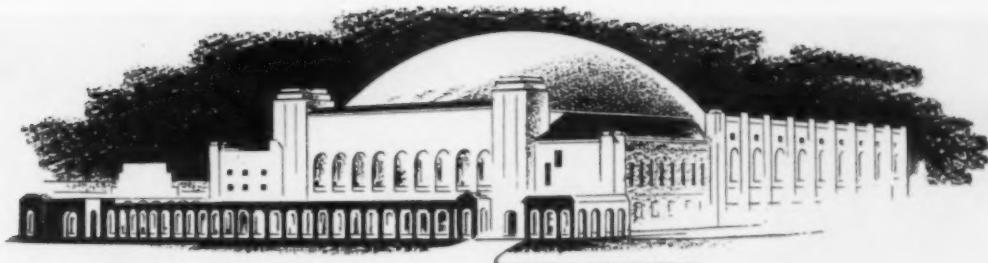


possible to install unit flush with either building line or window line. Also adjusts up or down as needed. Can be recessed in wall since it has no controls or air openings on top or sides of cabinet. Windows can be lowered and locked without removing unit.

WINDOW CONDITIONERS — *Cory Corp., Chicago, Ill.* Three lines of flush mounted pushbutton units. Deluxe series has eight controls, with



factory installed heater and thermostat. Available in $\frac{1}{2}$, $\frac{3}{4}$, 1, and 1½-ton sizes. Custom series has four controls, with automatic thermostat available for field installation. Units available in $\frac{1}{2}$, $\frac{3}{4}$, and 1-ton capacities.



**At the 9th Exposition
Air-Conditioning and Refrigeration Industry
See Booths 321-322**



Visit the Mueller Climatrol exhibit at the exposition. Take a minute to review the wide range of sizes and types in the Mueller Climatrol line — the broad line that fits practically every need. Notice particularly the quality design and construction, the many Mueller Climatrol features that give

your customers better performance — and give you something *extra* to sell.

We think you'll find it well worth your while to stop. Remember, a warm welcome awaits you in Booths 321-322.

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THE ONE *BRIGHT* SPOT IN A DARK TUBING MARKET

When copper shortages coupled with engineering difficulties darken your tubing outlook, you can confidently look to Penn for help.

Penn's experience for one-third of a century, in drawing a better tube with quality that has never been equaled in cleanliness and uniformity, and their engineering knowledge in wall thickness and fabrication designs, assures you of a brighter tubing future.

Penn Sales Representatives will be glad to help you with your tubing requirements and explain the Penn story of "How much more Quality weighs."

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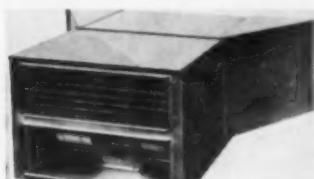
RESIDENTIAL AIR CONDITIONERS

FLEXIBLE CONDITIONER — *Worthington Corp., Harrison, N.J.* New "Flexi-Cool" air conditioner for homes and small commercial places is in 2, 3, 5, and 7½-hp sizes. Cooling cycle section alone may be added to an existing furnace. Complete unit also may be installed remotely with duct connections to area



to be cooled. Where water is scarce, evaporator section may be connected to an air-cooled condenser. If a remote installation is desired, blower and cooling coil can be installed as a unit while a water-cooled or air-cooled condensing unit is separately positioned. Units may be mounted on floor or hung from joists and may be arranged in various combinations for vertical or horizontal positioning with flexibility of positions for air intake and delivery.

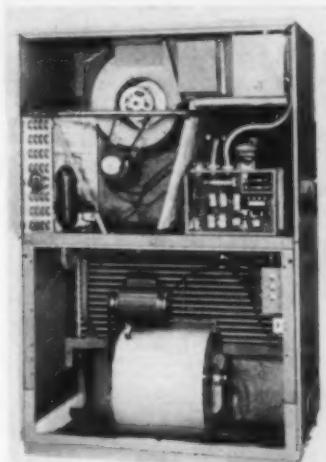
CENTRAL HOME UNIT — *O. A. Sutton Corp., Wichita, Kan.* Model B350A "Vornado" air-cooled unit is



designed for central residential cooling, and has a 36,000 Btuh capacity adjustable to 17,000 Btuh for economical operation. It has two individually operated 1½-hp hermetically sealed compressors and two separate squirrel-cage blowers. Motor and compressors are rubber-

mounted. This unit, with its total 3½-hp capacity, supplements a previous 2-hp model.

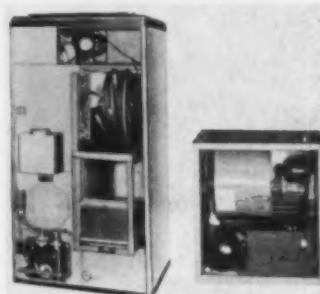
HEAT PUMPS — *General Electric Co., Bloomfield, N.J.* "Weathertron" line of packaged year-round conditioners provide heating as well as cooling with same mechanism. They extract "bonus" heat from outdoor air, making total Btu greater than quantity in current consumed. Latest models have modulated hermetic motor-compressor, the latter with three



cylinders, one of which shuts off at a specified temperature for economy in current consumption. All models now carry 5-year warranty on heating as well as cooling. Cabinets are designed for any room or outdoors; front panels may be painted or papered. In two sizes, the smaller unit has heating capacity of 75,300 Btuh at outdoor temperature of 20 F, and larger unit produces 104,400 Btuh at same level. Cooling capacities are rated at 39,000 Btuh and 56,000 Btuh respectively. Cabinet dimensions of all models are 29 x 48 x 74".

YEAR-ROUND COUNTERFLOW — *C. A. Olsen Mfg. Co., Elyria, Ohio.* "Luxaire" year-round air conditioner discharges cooled or warmed air downward, and is designed for utility room or closet in residence with-

out basement, and to be used with perimeter air distribution systems. Cooling coil is in a vertical position within furnace cabinet to provide efficient drainage of condensate water and prevent its redistribution into air



ducts. Choice of 2-ton size, hermetically sealed, air-cooled, remote-type refrigerant circuit, or water-cooled, is offered in combination with 100,000 Btu gas or oil heating. When unit is water-cooled, entire refrigerant circuit is in furnace cabinet. When air-cooled, only the cooling coil is in cabinet; a separate assembly of two compressors and condensers and the condenser blower is then installed in its own cabinet.

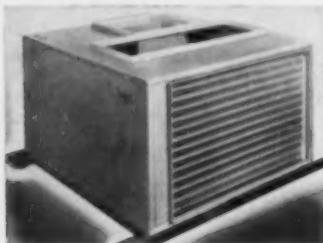
"CUBE-DESIGN" COOLING — *Lipman Div., Yates-American Machine Co., Beloit, Wis.* New residential air conditioner has components in cube-shape housing to permit more than



100 assembled arrangements in mass production. Purpose of shape is to permit arrangements to correspond to all types of furnaces. Sizes are 2, 3, and 5 hp. Cubes in the 2 and 3-hp sizes are of the same dimensions. One section houses blower, another the evaporator, and another

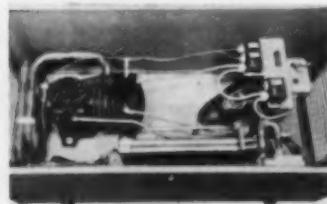
the compressor. Controls and accessories are to be available to fit almost every requirement.

PACKAGED UNIT—*Bryant Div., Carrier Corp., Indianapolis, Ind.* Model 555 central air conditioning unit has air-cooled evaporative condenser but uses water condensed from evaporator to increase con-



denser capacity. As packaged, this model may be installed in walls as well as other spaces. It is of 1½-hp size, with cooling capacity of 17,500 Btu/h. Units are furnished with front-located inlet and outlet air collars but have an optional top outlet also. Entire refrigerant system is sealed and tested at factory. Rated air delivery is at 450 cfm.

WATER CHILLERS—*Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.* For residential air conditioning, air-cooled packaged water chillers are in 2-hp size at 19,000 Btu/h, and 3-hp size at 27,000 Btu/h. Water-cooled



units are 2 hp at 22,700 Btu/h, 3 hp at 32,800 Btu/h, and 5 hp at 51,000 Btu/h. All are available for either single or three-phase current. Compressors are semi-hermetic with sealed motor. Wiring is complete at factory. Unit has overload protection, magnetic starter when required, high and low pressure refrigeration cut-out, and thermostatic controls.

CENTRAL HOME SYSTEMS—*Addison Products Co., Addison, Mich.* Two new residential cooling systems for sale to original equipment manu-

facturers only. Both models are central-type for remote installation. Remote high side section has weather-proof cabinet. Compact evaporator designed for installation in furnace housing, plenum chamber, duct, or beneath downflow furnaces, can be furnished for either vertical or horizontal air flow. Evaporator may be obtained with or without housing.

RESIDENTIAL UNITS—*United States Air Conditioning Corp., Minneapolis, Minn.* One model provides both heating and cooling for residential use; another is for converting



warm air system for year-round conditioning. First is in four styles providing gas-fired heating unit with capacities from 100,000 to 150,000 Btu/h, combined with 2 or 3-ton cooling unit. For summer operation, a by-pass damper prevents flow of cool air over heat exchanger to eliminate condensation and rust formation in furnace. Converter model, air-cooled, is used with various accessories to provide cooling only, or is combined with existing furnace.

AIR-WATER CONDITIONER—*Harvey-Hill, Inc., St. Louis, Mo.* In this line of residential air conditioners, the condenser tubing passes through an outer tubing of water-

soaked fabric or plastic, an arrangement designed to give high efficiency with low water consumption. The units are available in 2 and 3-ton sizes, and a 5-ton model is planned. Water is added to the space be-



tween the tubes just fast enough to offset the amount lost by slow passage to the exterior surface of the outer tube. Air blown against the wet surface causes evaporation which cools the inner water, and this cools the refrigerant. About 9 gallons a day is used in the 2-ton model.

OUTDOOR CONDENSER—*Brunner Mfg. Co., Utica, N. Y.* Air-cooled 5-hp condensing unit, for use with residential air conditioners, is able to deliver 36,000 Btu at ambient temperatures up to 110 F. Housed in a steel "dog house" 45" high, it is designed for remote installations. It includes a magnetic starter and disconnect switch, and uses two 1/6-hp fans with 3600 cfm total capacity for handling condenser air.

YEAR-ROUND UNIT—*Mueller Climatrol Div., Worthington Corp.* Air conditioner in gas or oil heat models



has winter capacity of 100,000 Btu/h, and cooling in either 2 or 3-hp sizes. Oil model is convertible. Cooling components may be omitted for later installation. All controls and access panels are at front. Return air drop duct is available. Blower is 11" size for minimum noise in air distribu-

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AIR CONDITIONING • HEATING FOR HOMES, BUSINESS, INDUSTRY

& AIR CONDITIONING • NOVEMBER, 1955

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PROOF AGAIN! G-E Packaged Air Conditioner dealers climb higher in the business than anybody!



NOW G-E CEILING-MOUNTED UNITS OPEN NEW MARKETS FOR BIGGEST PROFITS EVER

Matter of fact, G-E Packaged Air Conditioner dealers are climbing right up to the ceiling! Because new G-E units go up to the ceiling, too. They don't take a single foot of valuable floor space! They open new markets for the biggest profits ever—offices, factories, super markets, small shops and restaurants—banks, institutions and warehouses!

Air-cooled and water-cooled models. Where water is a serious problem, G-E air-cooled units, in 3 and 5 ton sizes, are an ideal answer...use no water, require only air and electricity. G-E water-cooled units are available in 3, 5 and 7½ ton sizes. All units may be equipped with heating coils for winter heating.

All-in-one construction. These models are entirely self-contained. No remotely located parts to cut efficiency or cause refrigerant leaks. Motor, compressor and condenser are sealed by

flame to keep dirt and moisture *out*, vital refrigerant and oil *in*. And each cooling system carries G.E.'s famous 5-year warranty, which includes a generous labor allowance and shipping costs.

For full information about the extra advantages of G-E Packaged Air Conditioners, call your nearest G-E distributor, or write: C. J. Rigby, General Electric Company, Commercial and Industrial Air Conditioning Dept., 5 Lawrence Street, Bloomfield, New Jersey.

Packaged AIR CONDITIONERS

Progress Is Our Most Important Product

GENERAL  ELECTRIC

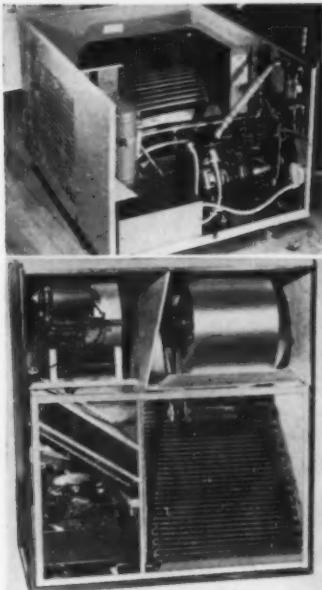
See this sales-building new unit in our Booth #316 at the ALL-INDUSTRY SHOW, Convention Hall—Atlantic City, November 28 through December 1.

Circle No. 55 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

tion. Condenser is water cooled, but optional remote condenser is air cooled. Dimensions are 59 1/4" high, 47 5/16" wide, and 28 1/2" deep.

AIR-COOLED SYSTEMS—*Lennox Furnace Co., Marshalltown, Iowa.* Air-cooled models added to water-cooled line are in 3 and 5-ton remote models and in 2 and 3-ton self-contained sizes. In remote series, compressor, condenser, blower, drier, and controls are housed in weather-



proof cabinet for installation either indoors or outdoors. Evaporator, expansion valve and filter are in cabinet to set on top, below, or at the side of forced air furnace. In self-contained series, each unit is charged at factory, and has blowers to handle 900-1000 cfm per ton of cooling. All models include evaporator blower, pre-wired automatic control panel, and a heating-cooling thermostat.

COOLING COMPONENTS—*Thatcher Furnace Co., Garwood, N. J.* Air-cooled condensing units



with built-in blower in 2, 3, and 5-hp sizes, and separate cooling coil units in sizes to match, added to previous water-cooled models. Cool-

ing coil units are ready-flanged for ductwork installation. Condensing unit can be installed indoors or out. Flexibility of installation makes this equipment especially suited for commercial applications. A housed blower coil assembly is also available.

RESIDENTIAL SYSTEM—*York Corp., York, Pa.* Compressor-condenser unit may be remotely located in this system, yet its lines and those of evaporator are factory sealed. Inner seals of lines remain intact until connection has been completed. Cooling coil may be installed at furnace, or in ducts, or in blower section. The system is available in 2 and 3-hp sizes.

REMOTE CONDITIONER—*Muncie Gear Works, Inc., Muncie, Ind.* "Marvair" waterless air conditioner has separate condenser and evaporator sections, either or both suitable for remote location. Weatherproof condenser cabinet is suitable for outdoors. Evaporator may have either



horizontal or vertical flow for use below or above forced air furnace. Both evaporator and condenser are rated oversize. Sirroco blower, 15" size, is capable of 4000 cfm, making it unnecessary to run at top speed. Unit, completely wired, is in 2 and 3-ton sizes.

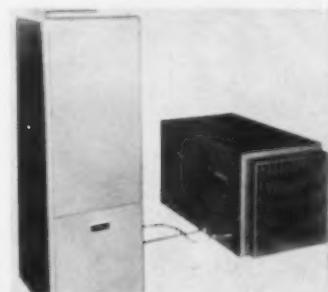
RESIDENTIAL UNITS—*Mitchell Mfg. Co., Chicago, Ill.* Six add-on conditioners and six year-round units, all for residential applications, are included in this line. The add-on group is in 2, 3, and 5-ton models. In air-cooled styles, these have remotely located condenser; in water-cooled styles, there are cleanable condensers with lint collector

and 1 1/4" drain hole. Units have chassis which slides out from cabinet without removing controls, damper linkage, baffles, or sheet metal



parts. The year-round units are in 1 1/2, 2, and 3-ton cooling capacity, with air or water cooled condensers, and in combination with gas-fired furnaces of 70,000, 125,000 or 150,000 Btu/h ratings.

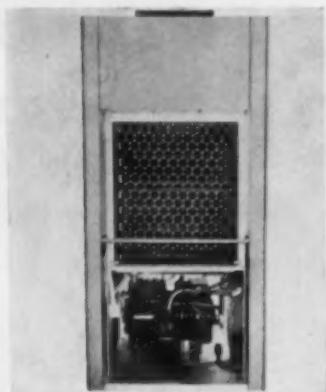
SPOT COOLING UNITS—*Perfection Industries, Inc., Cleveland, Ohio.* This line of 2 and 3-ton spot-cooling units, for residential and commercial applications, includes both air-cooled and water-cooled models. Both types have a remote condenser section connected to the evaporator with quick-disconnect fittings. Residential models use a centrifugal



blower while commercial units use fans. Units may be used separately or in conjunction with furnaces, and may be installed in 30 different ways for up or downflow operation.

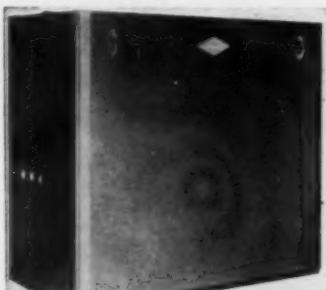
AIR COOLING LINE—*Penguin Corp., Livonia, Mich.* Residential, commercial, and room-type air conditioners are included in this line. Model 300-W has 3-hp compressor, delivers to 3 3/4 tons. Model 500-CW

is 5 hp, with capacity to 5 $\frac{3}{4}$ tons. Both have insulated, baked-enamel cabinets. Models 75-AB and 75-AH



room air conditioners move air at 300 cfm and use $\frac{3}{4}$ -hp condensers. Model 75-AH is mounted on casters. Model 75-AB has cooler on top for storage of ice and beverages.

"ADD-ON" CONDITIONERS — *Union Asbestos & Rubber Co., Chicago*. Model NU residential cooling unit is designed for use with any furnace. It has pump-down control system and five-row cooling coils in vertical position. Service connections and hermetic compressor are easily accessible. Sizes of 3 and 5 tons may



be installed in depths of 19" and 22 $\frac{3}{4}$ " respectively. Auxiliary fan is used to augment furnace fan.

HOME COOLER — *Sunbeam Air Conditioner Div., American Radiator & Sanitary Corp., Elyria, Ohio*. Unit is for horizontal addition to air heat-



ing system. It is 44" long, 23" deep, and 23" high, and may be hung from ceiling joists or from floor in crawl space. It has water-cooled refrigerant circuit, and is made without blower for combination with basement-type, horizontal, utility, or counterflow furnaces. It is in 2 and 3-hp sizes.

Continued on page 127

COMMERCIAL AIR CONDITIONERS

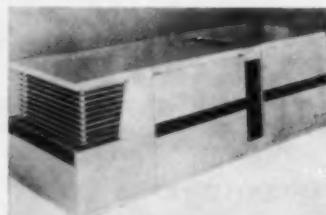
NEW PACKAGED UNITS — *Carrier Corp., Syracuse, N. Y.* New self-contained, water-cooled "Weathermaker" commercial air



conditioners designed expressly for use in central duct systems for stores, offices, and similar establishments. Available in 2, 3, and 5-hp sizes. Reduces amount of ductwork and installation space required; permits more freedom in location. Solid front panel contains no return air grille or openings to detract from appearance. Return air ducts can be brought in through bottom as well as back. Single ornamental control

dial protected by clear plastic dome. Pre-wired electrical center. Fan assembly easily changes from top to rear for low-headroom installations. For in-the-space applications, a matching plenum and specially designed base can be added to convert the unit to standard free-blow use.

SPACE-SAVER UNITS — *General Electric Co., Bloomfield, N. J.* Completely packaged horizontal-type air conditioners for ceiling or shelf



mounting in commercial applications. Available in either water or air-cooled models in 3, 5, and 7 $\frac{1}{2}$ -ton capacities. Motor, compressor, and condenser are permanently sealed in steel and lubricated for life. Compressor, fans, and drives are

resiliently mounted. Automatic control is included to provide extra moisture removal on humid days. Accessories include a heating coil which can be used with steam or hot water, and a three-way directional air distributor.

AIR CONDITIONING LINE — *Clime-Matic Corp., South Norwalk, Conn.* Line ranges from 2-ton residential models to 30-ton industrial units. Models suited for floor, wall, or ceiling installation. Heavy-duty semi-hermetic condensing units, readily field adjusted. Controls readily accessible. All models can be supplied with any electrical characteristics or for use with gasoline or kerosene power units.

DUCT FURNACE — *Modine Mfg. Co., Racine, Wis.* Gas-fired furnace for installation in duct circuit either as main heat source or as booster. Air flow through unit can be in either direction, permitting installation to allow easy access to controls. Blower may be remotely located. Stainless steel construction of

HERE ARE THE IMPORTANT FACTS ON WATERLESS AIR CONDITIONING

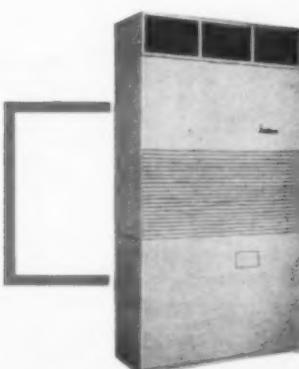


*AIRTEMP's experience in
Waterless Air Conditioning proves...*

**these exclusive customer benefits
make AIRTEMP easier to sell!**

- **LOWER OPERATING COSTS**—eliminates water consumption, eliminates cooling tower. Advanced Chrysler engineering means greatest operating efficiency.
- **LOWER MAINTENANCE COSTS**—eliminates "water-scale" condenser problems, avoids cooling tower "clean-outs."
- **GREATER FLEXIBILITY OF INSTALLATION**—provides the best answer to every application problem.
- **5-YEAR WARRANTY**—dependability guaranteed by a 5-year warranty on the *entire* refrigeration circuit.

Customer confidence in the famous Airtemp name is your proof of the great opportunity awaiting you with Airtemp.




**THE
FORWARD LOOK
IN
AIR CONDITIONING**

the really complete line for '56!

Airtemp gives you a big choice in both waterless
and water-cooled packaged air conditioners.
13 sizes from 2 H.P. to 30 H.P.



AIRTEMP BUILDS AIR CONDITIONING FOR EVERY BUSINESS REQUIREMENT

Circle No. 56 on Reader Service Card
& AIR CONDITIONING • NOVEMBER, 1955

A Guide to Exhibitors at the 9th Exposition of the Air-Conditioning & Refrigeration Industry

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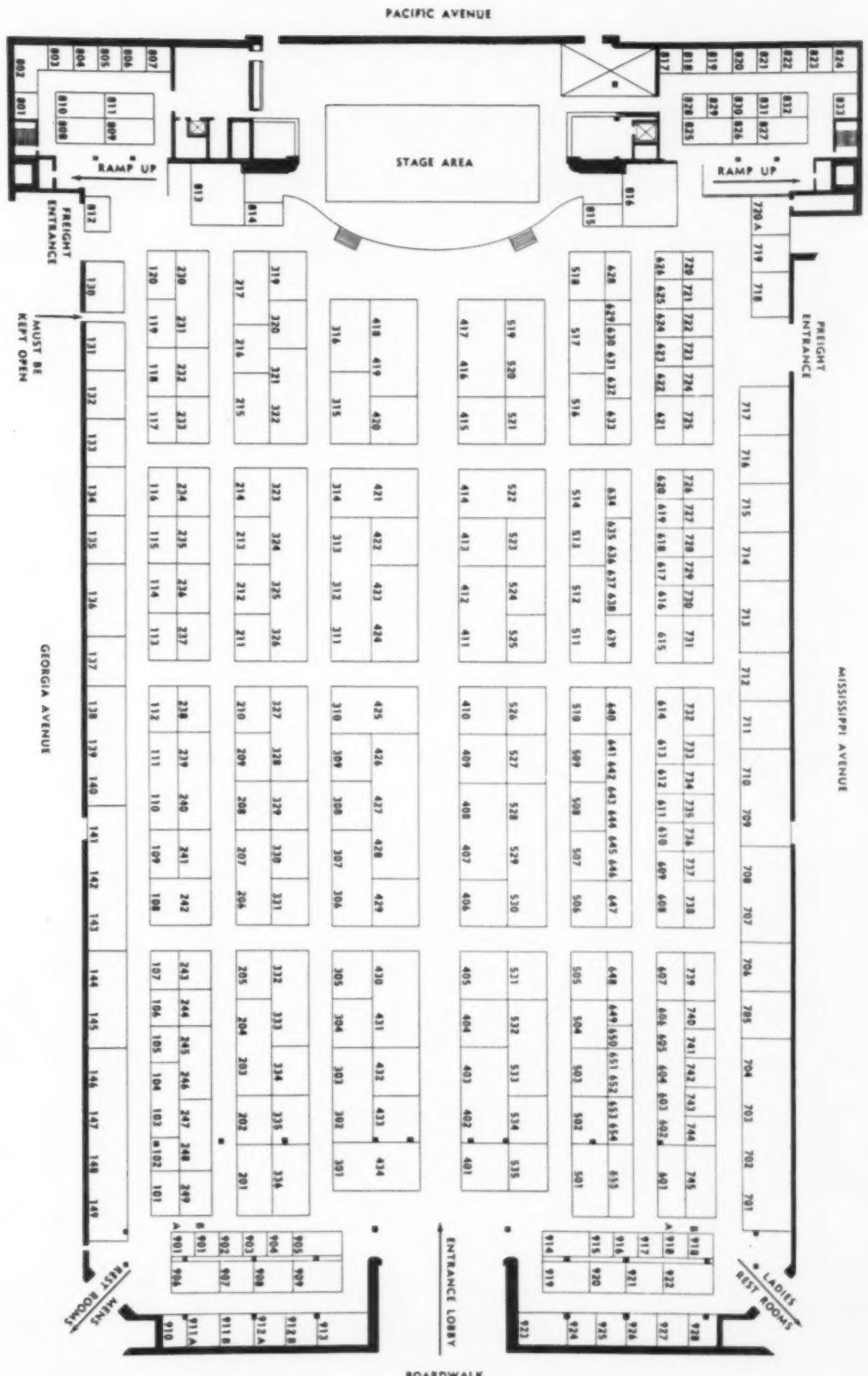
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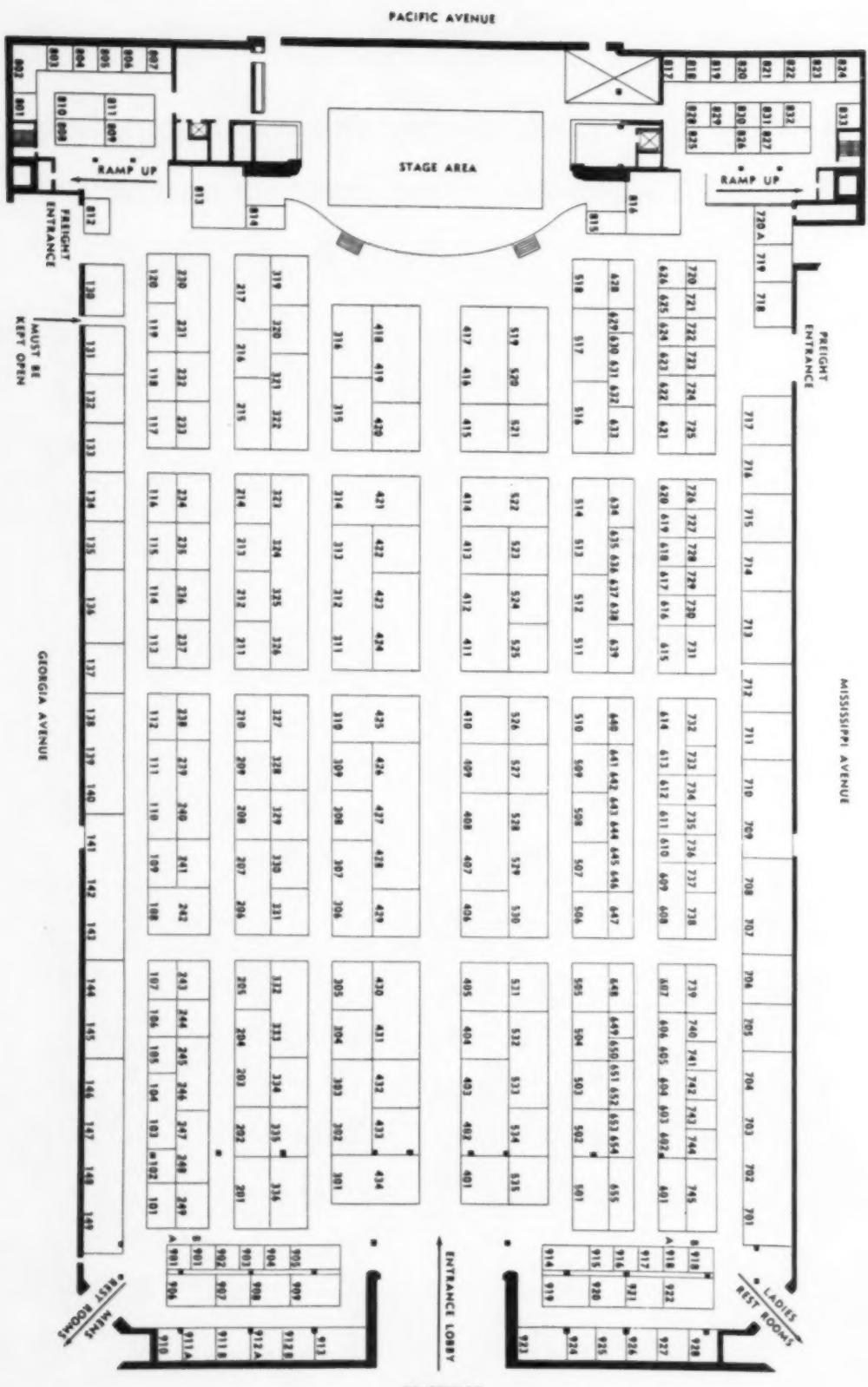
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SCHEDULE OF SHOW-TIME ACTIVITIES

Headquarters Hotels: Ambassador (RACCA and RSES); Cleridge (ARW); Traymore (NCRSA and ASRE); Chalfonte-Haddon Hall (ARI).

Friday, November 25

4:30 p.m. **ARW** Manufacturers Relations Committee.
8:00 p.m. **ARW** Finance Committee.

Saturday, November 26

9:00 a.m. **RSES** registration. **ARW** Directors meeting; luncheon at 12:30 p.m. **RACCA** registration; all-day committee meetings; all-day hospitality get-together.
10:00 a.m. **ARW** registration.
1:00 p.m. **RSES** opening business session and educational program.
6:00 p.m. **ARW** get-together; past presidents' dinner at 8:00 p.m.

Sunday, November 27

8:00 a.m. **RSES** registration.
9:00 a.m. **RSES** educational session. **RACCA** registration.
10:00 a.m. **ARW** registration; luncheon for manufacturers and guests 12 noon. **ARI** directors meeting. **RACCA** board meeting to 4:30 p.m.
12:30 p.m. **NCRSA** annual luncheon, board meeting.
1:00 p.m. **RSES** educational session to 5:00 p.m. **RACCA** general meeting.
2:00 p.m. **ARW** business meeting, officers' election, committee meetings and reports to 5:00 p.m. **NCRSA** registration.
5:30 p.m. **RACCA** annual reception and cocktail party; banquet at 6:30 p.m.
6:30 p.m. **ARW** officers' reception; anniversary banquet at 7:30 p.m.
7:00 p.m. **RSES** get-together.

Monday, November 28

8:00 a.m. **ARW** registration; symposium at 9:00 a.m.; general meeting and business meeting, 9:30 a.m.
RSES educational session, business session, election of officers. **NCRSA** registration; luncheon at 12:30 p.m.
10:00 a.m. **RACCA** general meeting; annual luncheon 12:00 noon, business session to 3:00 p.m.
2:00 p.m. **NCRSA** general meeting. **ARI** ladies entertainment.
6:00 p.m. **NCRSA** reception; annual dinner at 7:00 p.m.
RACCA hospitality get-together.

Tuesday, November 29

9:00 a.m. **RSES** educational session.
9:30 a.m. **NCRSA** general meeting; luncheon at 12:30 p.m. **ARI** credit committee meeting.
10:00 a.m. **RACCA** general meeting.
1:00 p.m. **RSES** board meeting.
2:00 p.m. **NCRSA** general meeting.
6:00 p.m. **ARI** cocktail party for invited guests. **RACCA** hospitality get-together.

Wednesday, November 30

8:30 p.m. **ARI** 9th Exposition Follies.

Thursday, December 1

9:00 a.m. **ASRE** general assembly; technical sessions to 12:40 p.m.
1:00 p.m. **ASRE** welcome luncheon; forum meetings in afternoon; skating party in evening.

Friday, December 2

9:00 a.m. **ASRE** technical session; concurrent conferences, morning and afternoon.
9:30 a.m. **ARI** ice-maker Section conference.
6:30 p.m. **ASRE** cocktail party and dinner dance.

Saturday, December 3

9:00 a.m. **ASRE** air conditioning conference.



Wait!

If you're thinking of changing dealerships...be sure you see what's **REALLY NEW** in modern air conditioning!

Sensational New Development!

LENNOX

SO EXCITINGLY NEW AND DIFFERENT WE DON'T DARE REVEAL THE DETAILS UNTIL JANUARY 1

COMING...

JANUARY 1ST

MAIL COUPON TODAY!

THE LENNOX FURNACE COMPANY

(Address your nearest branch. See locations at right.)

Yes...I want to know about the new development in air conditioning as soon as you can release the information. This does not obligate me in any way.

COMPANY.....

ADDRESS.....

CITY.....

STATE.....

MY NAME.....

The LENNOX FURNACE COMPANY

Marshalltown, Iowa; Columbus, Ohio; Syracuse, N.Y.; Ft. Worth, Texas; Decatur, Ga.; Los Angeles, Calif.

Salt Lake City, Utah; Des Moines, Iowa

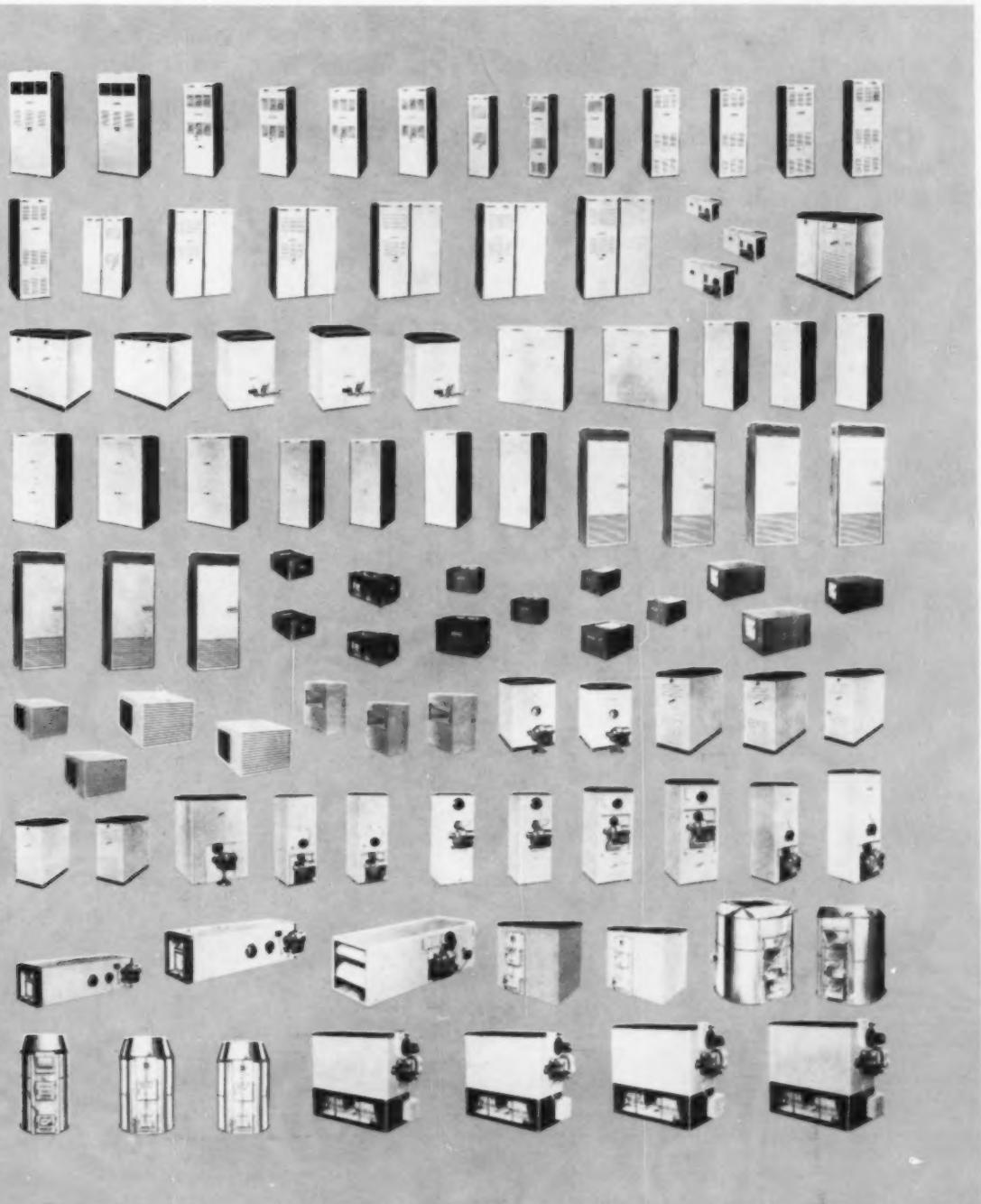
In Canada: Toronto and Calgary

Circle No. 57 on Reader Service Card

LENNOX

... absolutely the most complete

line of air conditioning and heating equipment

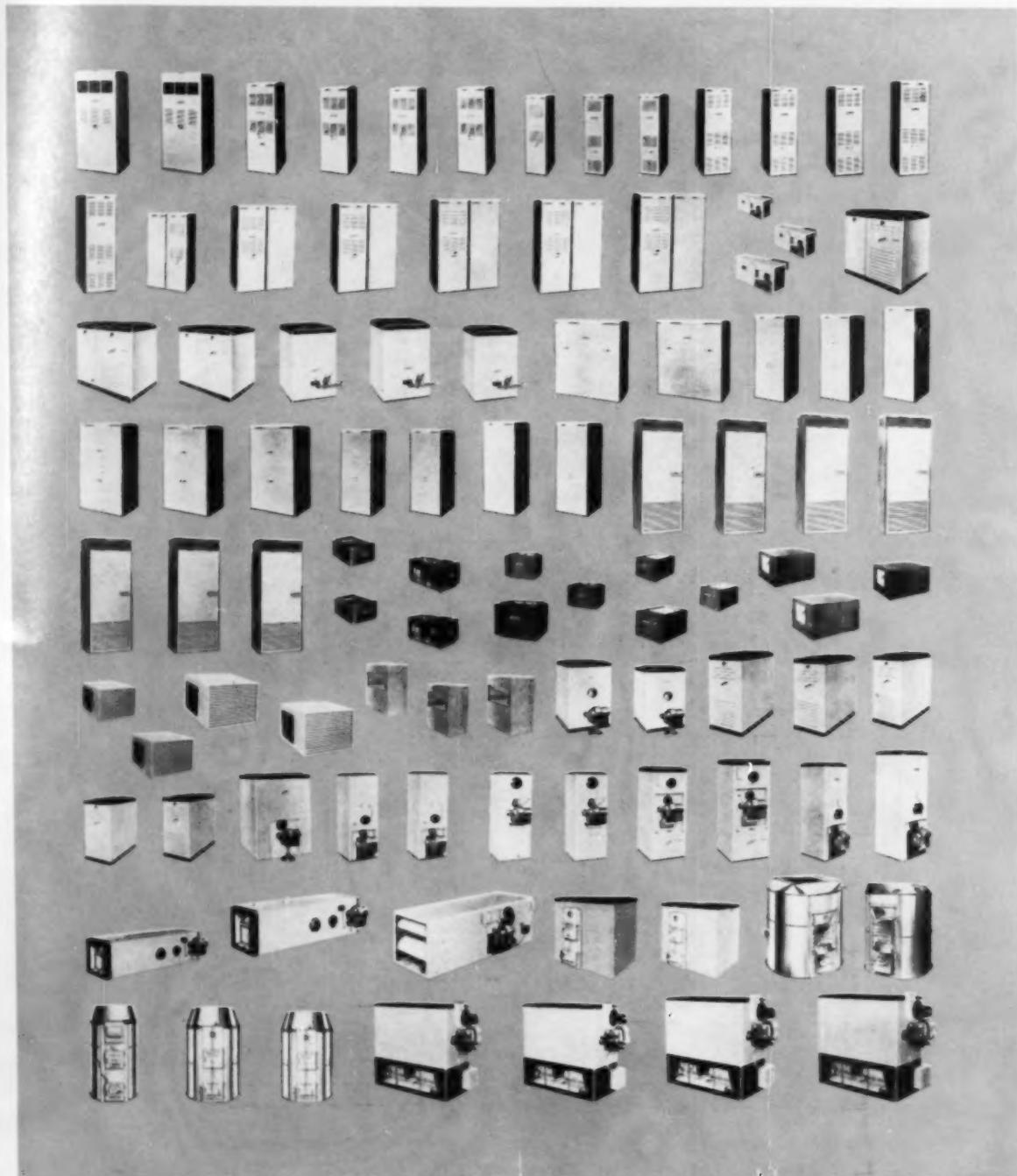


Circle No. 57 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

LENNOX

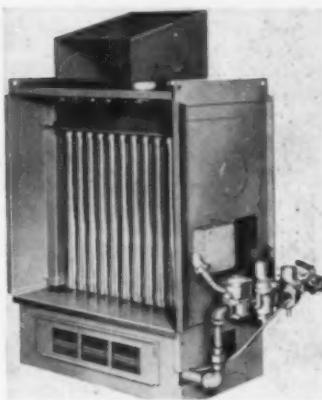
*...absolutely the most complete
line of air conditioning and heating equipment*



Circle No. 57 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

burner and heat exchanger eliminates condensation problem when used in conjunction with air cooling



systems. Burner assembly is in drawer that can be pulled out for service. Fully automatic gas shut-off and high limit control are added safety features.

NEW PACKAGED LINE—*Airtemp Div., Chrysler Corp., Dayton, Ohio.* Completely restyled line of packaged commercial air conditioning units in nine sizes from 2 to 30 hp. Self-contained, water-cooled units available



in capacities of 2, 3, 5, 8, 11, 15, 20, 25, and 30 hp. Same unit available as "waterless" system for connection to remotely located air-cooled condensing unit is offered in 2, 3, 5 and 7½-hp sizes. Functional styling and flush design to blend with any interior decoration.

COMMERCIAL PACKAGED UNITS—*Frigidaire Div., General Motors Corp., Dayton, Ohio.* "Master-Matic" self-contained air conditioners in 10 and 15-hp sizes. Both

models use twin cooling system for separate or simultaneous operation. Blower section at top can be adjusted for discharge to front, back, or upward, to simplify tying into ductwork. Compressor and cooling



sections can be separated for remote installation if desired. Compressors are sealed reciprocating type with direct drives, and are permanently lubricated. Steam heating coils are also available.

PACKAGED COOLER—*Elliott Engineering Co., Lynwood, Calif.* "Cond-Air" self-contained air conditioner incorporating an evaporative condenser. Flexible as to location, unit can be installed in garage, on roof, in attic or basement, or against outside wall. Protected against weather and requires no additional enclosure.

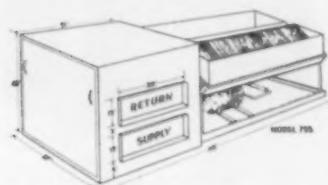
WATER-COOLED CONDITIONER—*Union Asbestos & Rubber Co., Chicago, Ill.* "Royal-Aire" self-con-



tained unit has pump-down control system which insures that a minimum of gas remains at low pressure in the coils when the unit shuts down, resulting in less electricity re-

quired for starting. Can be equipped with heating coil. All service connections readily accessible. Blower section can be used for either vertical or horizontal discharge. Vertically mounted 5-row cooling coils; accessible hermetic compressors. Units are available in 3, 5, 7½, 10, and 15-ton capacities.

ROOF-MOUNTED CONDITIONER—*Lighthouse, Inc., Cleveland, Ohio.* "Rimbach" air-cooled conditioning



unit designed for roof-top installation. Contains two 20 x 25 x 1" filters, two 10" diameter blowers, and a hermetically sealed F-22 7½-hp condensing unit, plus built-in thermostat. Condensate from cooling coil runs onto roof and evaporates. Ducts can be run either to ceiling outlet or to a distribution system. Capacity is 92,000 Btu.

STORE CONDITIONERS—*American Blower Corp., Detroit, Mich.* Units available in 3, 5, 7½, 10, and 15-ton size for cooling, and may be



provided with steam or hot water coils for heating. Height is about 8" less than in comparable units, but curved blades of diffuser grille direct air upward and give it desired turbulence. Each unit composed of four horizontal sections with separate removable panels. Upper (plenum) section can be omitted for a direct duct installation.

30-TON PACKAGE UNIT — *Typhoon Air Conditioning Co., Brooklyn, N.Y.* All machinery free-floated on springs to reduce noise and vibration.



tion to a minimum. Usable either as free-standing unit or with ductwork as a central system. Cabinet is 14-gauge steel built in wrap-around sections reinforced with triple thickness at critical spots. Equipped with all-copper condenser, two full-width blowers, and open type compressor. Capacity control available if desired.

PACKAGE AIR CONDITIONERS — *Mitchell Mfg. Co., Chicago, Ill.* Line of packaged commercial and residential air conditioners ranging from 2 to $7\frac{1}{2}$ tons in capacity. All units are self-contained, hermetically sealed, and either air or water cooled. Size ranges are: store models —2, 3, 5, and $7\frac{1}{2}$ tons; residential add-on units—2, 3, and 5 tons; year-round residential units— $1\frac{1}{2}$, 2, and 3-ton, incorporating gas-fired furnaces from 75,000 to 150,000 Btu/hr.

FACTORY AIR CONDITIONER — *Alco Refrigeration, Cleveland, Ohio.* Self-contained "Air-master" air conditioning unit for industrial and



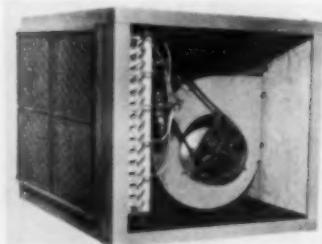
commercial buildings. Entire installation is on roof. Only inside evidence of equipment is single opening in ceiling for combination air supply and return outlet. Air-cooled, unit requires no floor space or ductwork, needs no plumbing or drain.

COMPACT CONDITIONER — *Therm-Air Mfg. Co., Hawthorne, N.J.* "Weathertrol" packaged commercial air conditioner occupying little floor space and especially suitable for zone cooling without ductwork. Spring-mounted unit minimizes noise and vibration.

COMMERCIAL UNITS — *Coleman Co., Wichita, Kansas.* Packaged commercial air conditioners in 3 and 5-ton sizes. Adjustable louvers in top provide one-way to four-way air circulation where ducts are not used. Air return to filter and cooling coil is through concealed slots in front panel. Only water, electric and condensate drain connections needed.

AIR CONDITIONING EQUIPMENT

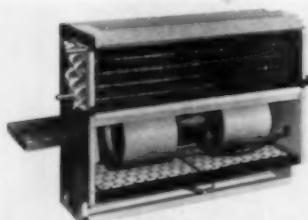
COMBINATION COOLING SYSTEM — *Typhoon Air Conditioning Co., Inc., Brooklyn, N.Y.* Model 8ACCU remote air-cooled condensing unit coupled with 8 LSU low-side air handling unit to form



system that requires no floor space. Condensing unit may be placed outside air conditioned area, and air handling device can be suspended from wall or ceiling. Air handling unit can be used for cooling with existing hot water or steam heating systems, and is suitable for air conditioning areas without any air handling facilities. It also serves as heat-

ing unit through addition of heating coil. Combined units are available in matched capacities of 2, 3, 5, 8, and 10 tons.

REMOTE AIR CONDITIONERS — *Fedders-Quigan Corp., Trenton, N.J.* "Fedair" recessed units for concealed installations within building walls. Available in three sizes for



multiple room installations where hot and chilled water is provided from remote source. Unit's roughing-in dimensions conform with architectural and structural practice.

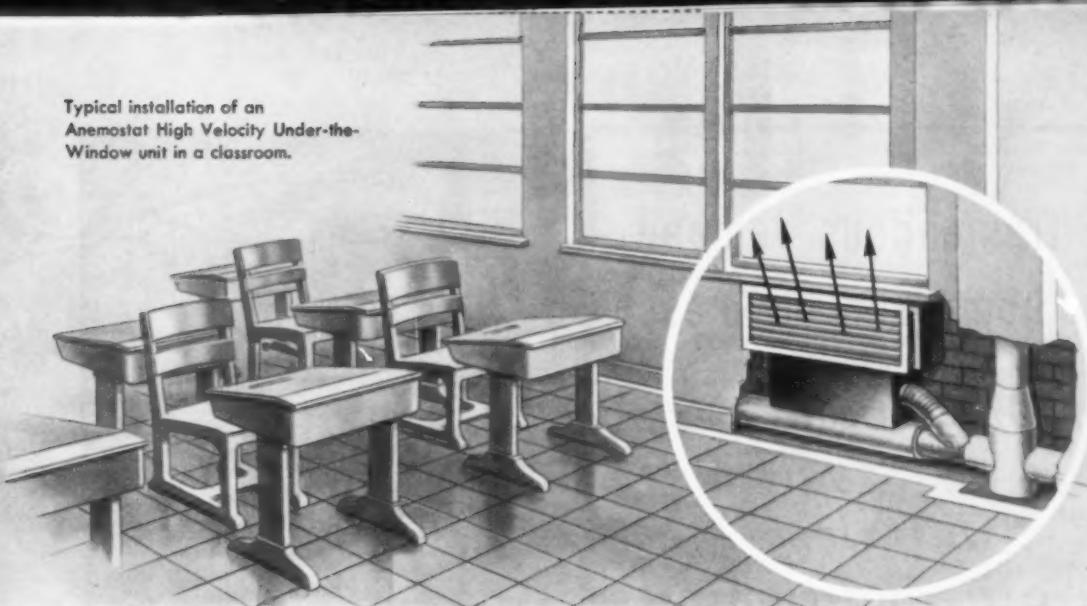
Dampers are provided for introduction of outside air which is blended with recirculated air and delivered into room at window sill level.

COOLER UNITS — *A. H. Witt Co., Los Angeles, Calif.* "Zone Air" room size coolers for remote-type installa-



tions, can be used with direct expansion, combination heating-cooling with water, or direct expansion and steam systems. Available in 14 sizes from 300 to 1200 cfm, with most models having two blower wheels driven by separate motors. Double drip pan provides insulating air space. Bottom of upper aluminum pan is insulated.

Typical installation of an Anemostat High Velocity Under-the-Window unit in a classroom.



How to deliver high velocity air to schoolrooms

Shown here are two ways of using the Anemostat All-Air High Velocity system of draftless air distribution for heating and ventilating schools. Under-the-Window units (above) are the most practical for colder climates. Corridor distribution (below) is preferable in warmer climates.

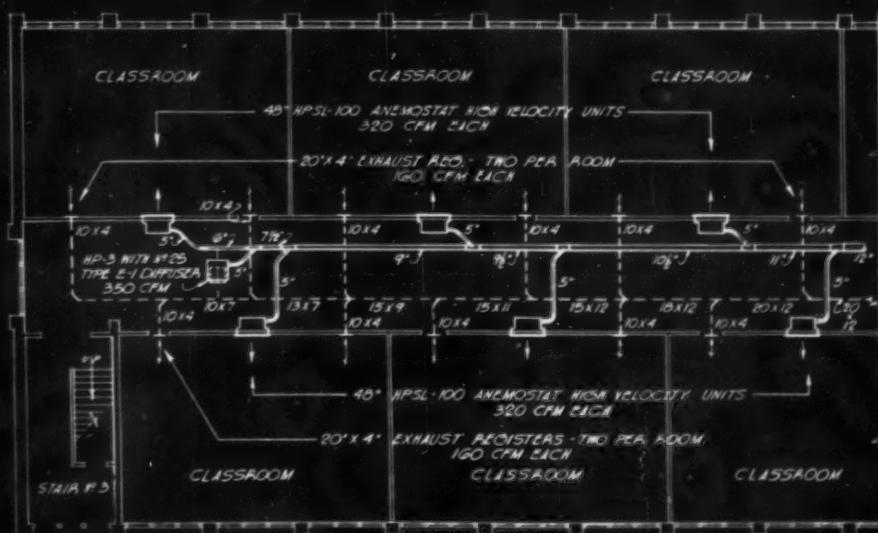
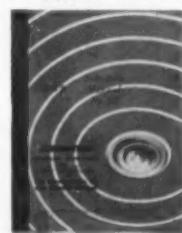
Advantages:

- All-Air High Velocity units require smaller than conventional ducts, thus save space and money.
- All-Air HV units can be used for individual or zone control, in single or dual duct installation.
- Since air is supplied from the main equipment room,

there is no need to break through the outside of the building for prime air make-up. This eliminates grilles, dampers, possibility of leaks.

- The Anemostat All-Air HV system can be simply installed by the sheet metal trades. No supply or return pipes are required. Units are quiet, need a minimum of maintenance from custodians.

For latest data on All-Air High Velocity units, write on your business letterhead for new Selection Manual 50 to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.

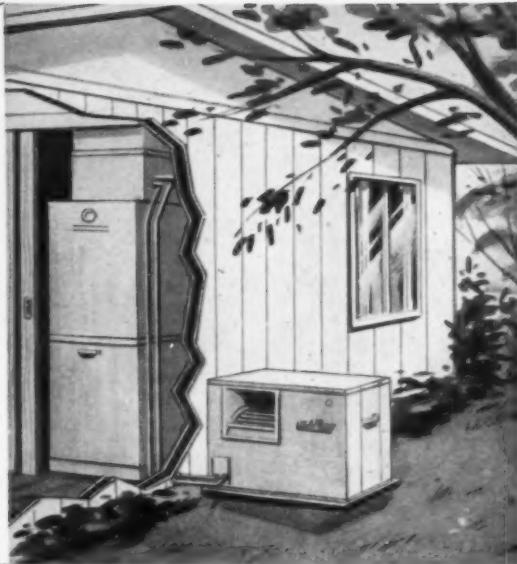


Diagrammatic layout shows corridor distribution of high velocity air for wing of school.

in tremendous demand
for home and business



**Kooler-aire
system
for "waterless"
air conditioning**



The industry's most complete line of
"air-cooled" . . . in matched 2, 3, 5 & 7½ h.p. models!



CONDENSING UNIT
compressor,
condenser coil,
blower, receiver



**HORIZONTAL AIRFLOW
COOLING COIL**
coil,
expansion valve,
drain pan



**VERTICAL AIRFLOW
HOUSED COIL**
v-type coil,
expansion valve,
drain pan



**COUNTER FLOW
HOUSED COIL**
coil, expansion valve,
drain pan



COIL-BLOWER HOUSED SETS
filter, coil
expansion valve,
drain pan, blower.



Meet today's growing demand for waterless air conditioning with the most efficient equipment built . . . usAIRco Kooler-aire. Kooler-aire operates on electricity only, ideal where water is scarce or expensive, and where water disposal is a problem. The condensing unit is usually located out-of-doors, but may be installed indoors when vented. Cabinet is weatherproof. Copper tubing carries the refrigerant from the condensing unit to the Kooler-aire coil, which may be installed anywhere on the outlet side of the air supply system. Where an independent blower system is needed, usAIRco provides a housed coil-blower unit with optional filter section.



Year 'Round



Add-on



"Packaged"

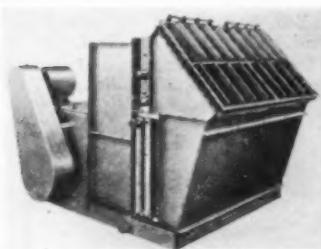


Central Station
Air Conditioner

See our
exhibit at
booth
531



CABINET AIR COOLERS — *American Blower Corp., Detroit, Mich.* Line of central station, cabinet-type conditioning units for industrial and commercial applications



with capacity range from 600 to 48,000 cfm. Three basic types include air conditioning units, sprayed coil units and multi-zone conditioner units (illustrated). First two named are available as either horizontal or vertical arrangements but with horizontal air flow. Third type is in single arrangement but for either horizontal or vertical air flow. Cooling and dehumidifying may be done in all types with chilled water, direct expansion refrigerant, or brines. Heating may be with steam or hot water. Humidification can be had with either target-type water nozzles or sprayed coils. Either manual or automatic controls are available for all models.

MOBILE AIR CONDITIONER — *Keco Industries, Inc., Cincinnati, Ohio.* Model G-2 trailer mounted aircraft ground cooling unit that is

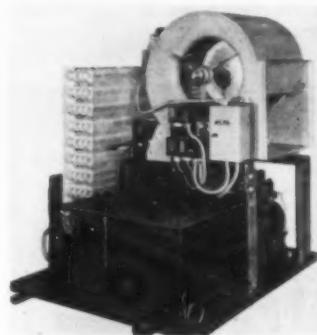


self-sustained, and air cooled. Unit has thermostatic refrigerant controls, is mounted on lightweight, welded steel vehicle, and has cooling capacity of 132,000 Btu/hr. Overall dimensions are 72" wide, 101" long, and 64" high.

COMPACT CONDITIONER — *Trane Co., La Crosse, Wis.* "Unitrane" fan-coil units, only 9" deep, designed especially for multi-room buildings. Four basic models are available: vertical cabinets, vertical concealed,

horizontal ceiling-mounted cabinets, and horizontal concealed. Units are served with chilled or hot water from remote source, and are equipped with "Delta-Flo" fin 2-row coil which provides as much heat transfer capacity as larger 4-row coil previously used.

PACKAGED WATER CHILLER — *Penn Boiler & Burner Mfg. Corp., Lancaster, Pa.* Redesigned line includes both air-cooled and water-



cooled models equipped with semi-hermetic compressors, sealed motors, and enclosed in enameled steel cabinets. Air-cooled units are available in 2 and 3-hp sizes; water-cooled units are available in 2, 3, and 5-hp sizes. All models are provided with overload protection, magnetic starter, high and low pressure refrigeration cut-out and thermostatic control.

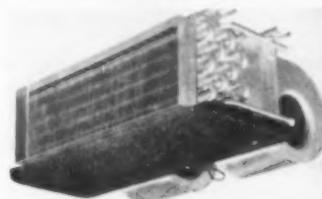
HORIZONTAL COIL UNIT — *Muel-ler Climatrol Div., Worthington Corp., Milwaukee, Wis.* Type 912



coil unit for installations where space is at a premium, features casting that can be built into heating unit ductwork, making alterations unnecessary when coil and condensing unit are installed later. Unit has

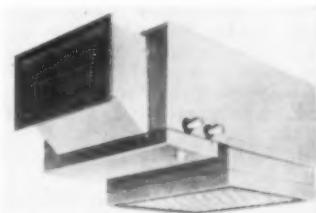
built-in by-pass damper for controlling excess humidity; is available in 2 and 3-hp sizes, and overall dimensions are 12 $\frac{1}{8}$ " high, 29 $\frac{3}{4}$ " wide and 20 $\frac{3}{4}$ " deep.

ROOM CONDITIONER — *Drayer-Hanson, Inc., Los Angeles, Calif.* "Spotaire LRC" cooling units designed to meet low head-room, low cfm requirements are available as



basic units for new construction or as concealed cabinet models. Units range in length from 23 $\frac{1}{2}$ to 33" long and are 11" high and 29" deep. Cooling capacities range from 5,000 to 24,000 Btu; heating capacities range from 15,000 to 60,000 Btu. Models have individual room control and all structural parts are constructed of galvanized steel with tube sheets, drain pans and coil baffles made of heavy gauge aluminum.

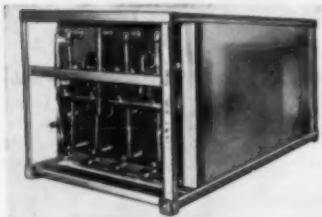
REMOTE CONDITIONER — *Refrigeration Engineering, Inc., Los Angeles, Calif.* Model RE "Recold" unit, for use with either direct ex-



pansion or chilled and hot water systems, is available in three sizes, completely enclosed with plug-in motor and fan assembly. Each unit is individually controlled, can be installed in new or existing buildings, fits into unused area, such as above closet shelves, and requires no ducts, as outlet can be fitted between studs.

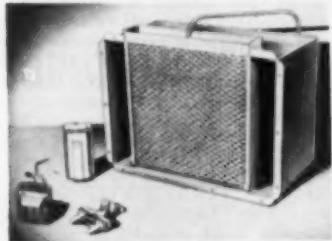
ICE-TYPE CONDITIONER — *King Zeero Co., Chicago, Ill.* Ice bank units for storage of reserve cooling capacity in conjunction with mechanical air conditioning. Units are available in 94 sizes ranging

from 72,000 to 4,320,000 Btu, for churches, restaurants, auditoriums, and other places where a temporary discharge of reserve cooling, far in



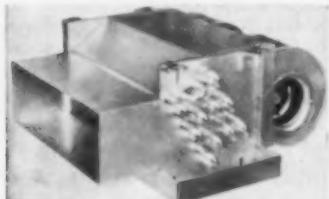
excess of compressor capacity, is required to handle peak loads. Ice thickness in chilled water is automatically controlled to eliminate freeze-ups. Units are available with or without compressor sections.

AUTOMATIC HUMIDIFIER—*Research Products Corp., Madison, Wis.* Line of three electric units include "Aprilaire" plenum (shown), portable, and universal models.



Plenum type mounts on warm air furnace and operates in conjunction with furnace blower. Portable unit requires no installation, and universal model is installed between joists in basement or crawl space. Portable and universal models have independent heat source to evaporate water; plenum model uses heat provided by furnace.

CEILING EVAPORATOR—*International Mfg. Co., Oklahoma City, Okla.* "Hideaway" remote model

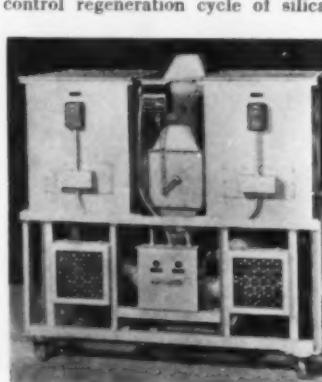


evaporator designed for installation with air conditioning systems in small areas near ceilings. Suitable

for hotels and office buildings, unit is only 11" high, requires no additional ductwork, and is individually controlled by wall switch but operates from central chilled water system. Model is of all-aluminum construction and equipped with removable motor-blower assembly.

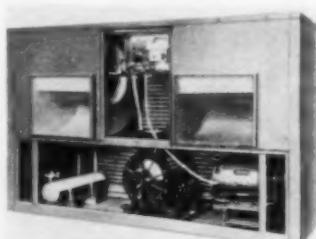
alone or to convert any existing warm air system to year-round air conditioning operation.

YEAR-ROUND UNITS—*Circle Air Industries, Inc., Brooklyn, N. Y.* "Dual-Conditioner" heating-cooling, individual room conditioners for



gel drying agent, making machine self-adjusting to atmospheric conditions. The compact unit is mounted on casters, requires only standard electrical outlets, minimum duct work, and measures 51" x 28" x 44".

REMOTE CONDENSER—*U.S. Air Conditioning Corp., Minneapolis, Minn.* Air-cooled condensing unit in 5-hp size for remote-type air conditioning systems in commercial buildings and large homes. Unit includes compressor, motor receiver,

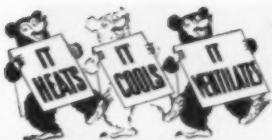


and condensing coil. Copper tubing carries refrigerant to cooling coil or coil and blower combination in duct of air distribution system. Condensing unit may be installed wherever there is adequate circulating air. Can be used to provide cooling

baseboard installation with wet-type systems. Low-height cabinets may be completely recessed and system make use of same piping for both heating and cooling. Cooling capacities range from 5400 to 7900 Btu; heating capacities from 10,400 to 16,000 Btu. Each unit is its own zone control and system will not be thrown out of balance if some units are shut off.

DUCT-TYPE HUMIDIFIER—*Watton Laboratories, Inc., Irvington, N. J.* Unit design incorporates centrifugal atomizer principles found in the company's room type, furnace type and industrial models, capacity is 24 lbs. per hour per unit; reservoir is equipped with float valve to regulate flow and eliminate need for any drain; 1/20-hp motor is suitable for use with line voltage humidistat control circuit.

NEW CENTRAL SYSTEM—*Warren Webster & Co., Camden, N. J.* Heating-cooling conditioner with individual room control available in recessed, semi-recessed, or free-standing cabinets. Motor and fan are rubber-mounted; double directional louvers are provided. Basement installation utilizes a chiller and boiler connected in parallel and fitted with shut-off valves for seasonal change-over. Cabinet measures 14" wide, 20" high, and 6 3/4" deep and fits within standard stud spacing.



Year 'round comfort for institutional
or commercial installations . . .



without costly duct systems!

**Modine AIRditioners are the modern,
economical way to air-condition old or
new buildings**

Modine AIRditioners eliminate expensive duct systems and structural alterations. Cold water from a central chiller is piped to each unit for summer cooling. Heating water is supplied by a central boiler. The same piping — water supply and drain — serves for both cooling and heating. Yet, AIRditioners are individually controllable by room occupants.

Choice of four distinct types. Contact the Modine representative listed in your classified phone book or write for Bulletin 754-D — MODINE MFG. CO., 1584 DeKoven Ave., Racine, Wisconsin.

Modine AIRditioners*

*Trademark

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& AIR CONDITIONING • NOVEMBER, 1955

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CEILING MODELS — deluxe units for exposed overhead installation. Save floor and wall space.



OVERHEAD MODELS — available with or without plenum and filters for use in furred overhead space.

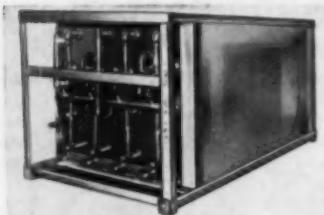


CONCEALED MODELS — (front panel cutaway) Designed for easy, in-the-wall installation.



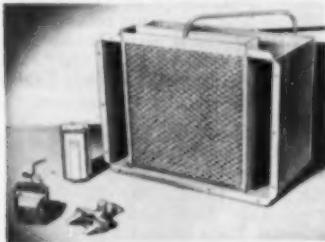
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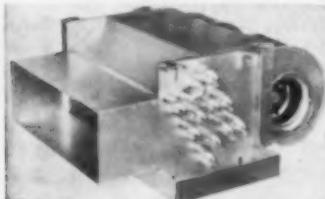
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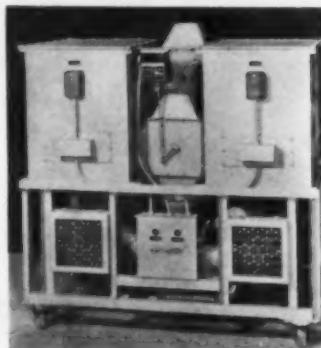
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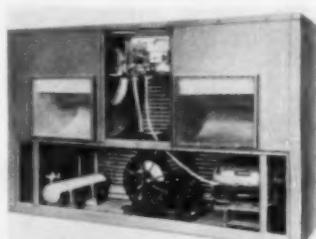
for hotels and office buildings, unit is only 11" high, requires no additional ductwork, and is individually controlled by wall switch but operates from central chilled water system. Model is of all-aluminum construction and equipped with removable motor-blower assembly.

SELF-ADJUSTING DEHUMIDIFIER—*Dryomatic Corp., Alexandria, Va.* Model T-150 dual-tower, adsorption type unit designed to maintain humidities as low as 10% in areas up to 60,000 cu. ft. over a wide range of temperatures. Thermostats control regeneration cycle of silica



gel drying agent, making machine self-adjusting to atmospheric conditions. The compact unit is mounted on casters, requires only standard electrical outlets, minimum duct work, and measures 51" x 28" x 44".

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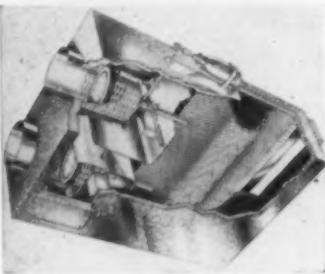
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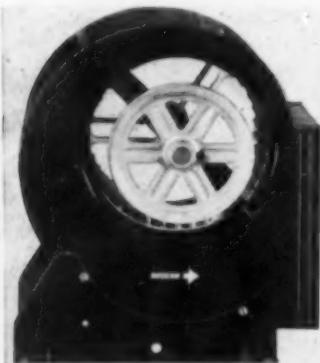
AIR HANDLING EQUIPMENT

HIGH PRESSURE DIFFUSER — *Connor Engineering Corp., New York, N.Y.* Dual duct diffuser providing both temperature and volume control. Both air inlets are fitted with dampers consisting of double



perforated concentric sleeves and felt edged pistons. Outer sleeves slide over inner sleeves, governing size of holes through which air flows. Amount one side is open is in ratio to amount other side is closed, thus blending hot and cold air as desired under thermostatic control. Capacities range to 1000 cfm.

BLOWER ASSEMBLY — *Viking Air Conditioning Div., National-U.S. Radiator Corp., Cleveland, Ohio.* This new universal blower assembly features lock-on feet that attach in four different locations to give each blower four different standard dis-



charge positions. Available in six basic models with 9, 11, and 13" wheels, either three-quarter of full width, thus making possible a total of 24 different blower combinations to handle the great majority of installation problems. Various stand-

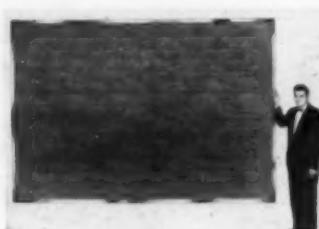
ard belt and pulley combinations can be used to increase or decrease air movement capacities.

FLEXIBLE DUCTING — *Flexible Tubing Corp., Guilford, Conn.* New highly flexible ducting designed exclusively for low and high pressure air conditioning systems. Constructed of a continuous spiral coil of spring wire laminated with three-ply layer of woven fiber glass impregnated with a resinous compound between two thin non-corrosive me-



tallic sheets. Offers excellent reflective insulation qualities and good air flow characteristics with no air leakage. Also reduces vibration. Waterproof, flame resistant, and impervious to fungus or mildew. Rugged construction specially designed to outlast rigid ducting under average service conditions. Quick and easy to install.

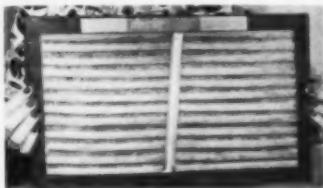
RETURN AIR GRILLES — *Titus Mfg. Corp., Waterloo, Iowa.* "Air-foil" grilles for return air ducts. One-piece assembly for any size opening makes unnecessary the practice of butting together small-



er grilles to form a panel of required size. Fins are curved, have hemmed edges, and provide 80%

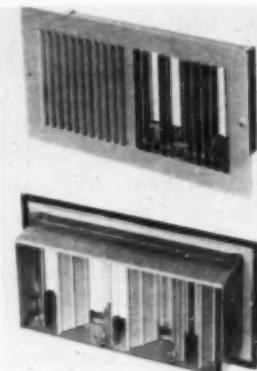
free area. No see-through is possible. Made of 18-gauge cold-rolled steel with gray lacquer primer as standard finish.

ODOR-ADSORBING FILTER — *Barnebey-Cheney Co., Columbus, Ohio.* New "Dacor" air filter for residential air conditioning systems which uses activated charcoal to



eliminate smoke, smog, and odors, as well as dust and dirt. These impurities are adsorbed by the activated charcoal which is contained in tubes of non-woven synthetic fiber. These tubes are used in combination with the customary disposable or permanent type dust filter element. Entire filter is disposable. Sizes available to fit all makes and models of air conditioners.

AIR CONDITIONING REGISTER — *Air-Factors, Inc., Monrovia, Calif.* Model 3R register with flexi-blade face. Features front edge pivoted .5



construction, $\frac{1}{2}$ " vanes on $\frac{1}{2}$ " centers. Vanes are flexible for on-the-job adjustment. Opposed blade air volume control is operated by

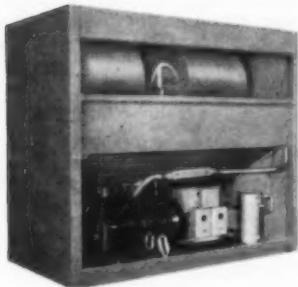
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TYPHOON WATERLESS Air Conditioning

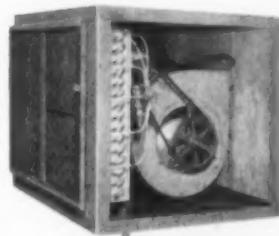


2-3-5-8-10 TON WATERLESS UNITS

New air cooled units, easy to install, need no plumbing



When water is short, impure, costly — or where sewer tax is a problem — you can handle the job easily and economically with a Typhoon waterless air-cooled condenser. Units are easy to install and require little or no maintenance . . . deliver full capacity in hottest weather . . . give you a powerful selling plus! Round out your line with Typhoon waterless air conditioners—full range of sizes up to the exclusive 10 ton unit.



Superior Typhoon Engineering:

Centrifugal blower eliminates wind resistance factor, overloading of fan motor . . . adaptable to duct work.

Bigger condensing surface—more cooling capacity with less electrical input.

Self-contained or remote installation—for most advantageous positioning.

Non-stop performance even in hottest weather because compressor is never over-loaded.

Quiet — slow speed blower with belt-driven, ball-bearing drive cuts noise level.

Weatherproof design — all components housed inside cabinet for outdoor installation by refrigeration contractor.

Visit Typhoon in Booth 501 at
the Atlantic City Exposition

TYPHOON

Specialists in Air Conditioning Since 1909

Typhoon Air Conditioning Co., Inc.
505 Carroll St., Brooklyn 15, N. Y.

I'd like to know more about selling Typhoon Waterless units.
Send me Bulletin C-2

Name _____

Address _____

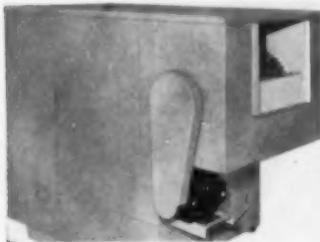
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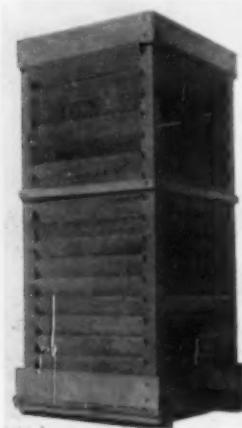
COOLING TOWERS .. EVAPORATIVE CONDENSERS

FAN-COOLED TOWERS—*Halstead & Mitchell, Pittsburgh, Pa.* These centrifugal-type, fan-cooled towers are available in capacities from 5 to 15 tons. They are designed for operation where quietness is of maxi-



mum importance. A 20-year guarantee applies to the wetted deck surface against rotting or fungus attack. Cabinet protection includes coatings of Vinsynite, vinyl zinc, and chlorinated rubber. The company is also introducing a new line of remote-type air-cooled condensers available in complete range of sizes, from 2 to 20 tons.

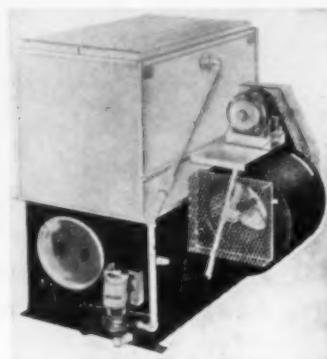
REDWOOD COOLING TOWERS—*Thermal Agency, Houston, Tex.* Atmospheric cooling towers with ratings from 3 to 50 tons. Constructed of heart redwood. Basin floor shipped pre-assembled with all holes



precision drilled. No drilling or nailing required on job. Furnished complete with plated hardware, suction connection and screen, drain hole with plug, bronze float valve

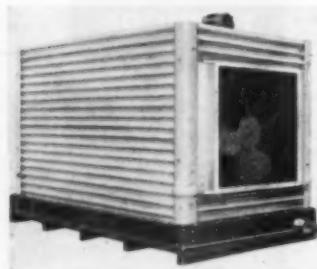
assembly, and galvanized steel spray headers. "Aspir-Jet" spray nozzles break-up water at low pressures.

EVAPORATIVE CONDENSERS—*Baltimore Aircoil Co., Inc., Baltimore, Md.* "Mighty-Mite" line of evaporative condensers is constructed of heavy-gauge steel throughout. Units come in capacities of 10 to 50 TR F-12 base rating, in 5-ton increments. All moving parts re-



moved from moist air stream to increase life and serviceability. Castings are of galvanized steel. Watertight casings that may be readily disassembled in the field. Watertight access doors provide entry to sump for cleaning and maintenance.

WOOD TOWERS—*Marley Co., Kansas City, Mo.* All-wood "Aqua-towers" in capacities from 5 to 50



tons for recooling water. Especially designed for use in cases where corrosion is a major problem. Combination of wood and corrugated asbestos board construction on larger

models is equally impervious to corrosive air or water. Have advantages of forced draft, cross-flow design, with vertical air discharge. May be located close to walls except on air intake side. Redwood filling. Gravity water flow from open distribution basin is also provided.

EVAP CONDENSING UNIT—*Co-bell Industries, Inc., Fort Worth, Tex.* "Aqua-Fog" unit in 2 to 5-ton sizes mixes air and water into fog spray for cooling hot refrigerant. Motor-driven "Turbulator", partly



immersed in water pan, breaks water into two sprays directed against condenser coils. Light spray is primarily for cooling. Heavy spray washes as well as cools the coils. Grille admits outside air to fan, which forces it to mix with sprays. Rapid heat transfer effected by reducing temperature in fog chamber close to wet bulb temperature of surrounding atmosphere. Excess water removed from exhaust stream and returned to water pan by moisture eliminator.

TAKE-APART TOWERS—*Halstead & Mitchell, Pittsburgh, Pa.* Line of cooling towers designed to be readily taken apart for installation in difficult locations. Feature 20-year guarantee against rotting or fungus attack on wetted deck surface. Fans are made of stainless steel and sheet steel cabinets are triple-protected with vinsynite, vinyl zinc, and chlorinated rubber, all hydraulically applied.

INDUCED DRAFT TOWERS—*TOT Towers, Inc., Houston, Tex.* PFW series of low head, gravity feed, induced draft, mechanical wood cooling towers in sizes ranging from 3 through 125 tons. Mod-

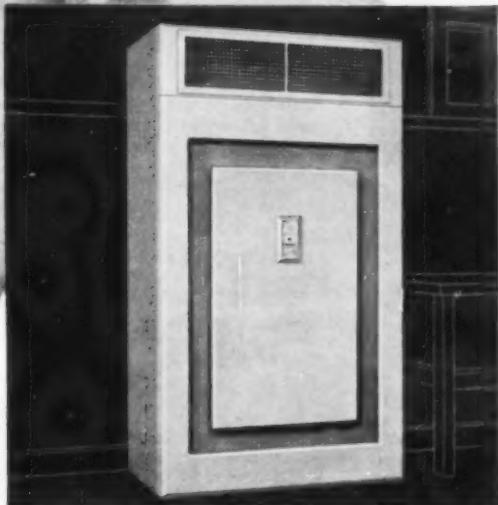


You make more sales with

Gibson

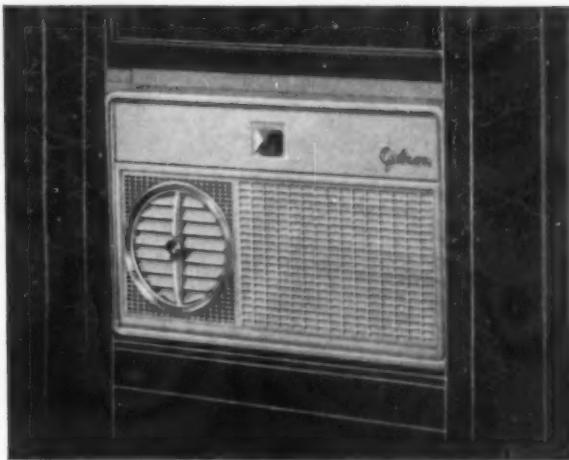
because Gibson gives more
to your customers!

means more profit to you!



Here is large capacity air conditioning for businesses, and for homes where central air conditioning is desired. Gibson's extra capacity water-cooled condenser gives maximum efficiency with low water consumption. Adjustable air vents give flexible air distribution, and duct connections are convenient.

Available in 2, 3, 5 and 8 horsepower units, air cooled and water cooled in commercial (shown here) and residential models.



Take this Gibson Custom Air Conditioner, for instance! It has Gibson's new Infinite Control direction louver for no-draft circulation. Push Button Controls, of course, that control both cooling and circulation at either high or low speed. Permanent type electro-static dust magnet filter, and thermostatically controlled cooling. Exclusive Gib-Sun-Air Ozone Lamp freshens the air, removing stale odors.

Gibson window air conditioners are available in $\frac{3}{4}$ h.p., 1 h.p. and 2 h.p. Custom models and in lower priced Deluxe models with the same horsepowers.

SEE US AT THE SHOW! BOOTHS 628 AND 629

79 years of experience and millions of satisfied customers mean you can always rely on

Gibson

REFRIGERATORS • ROOM AND SELF-CONTAINED AIR CONDITIONERS.
FOOD FREEZERS • ELECTRIC RANGES • BUILT-IN RANGES

**Gibson Refrigerator Company
Greenville, Michigan**

Please send me all the facts on the profitable Gibson air conditioning line.

Name

Firm name

Address

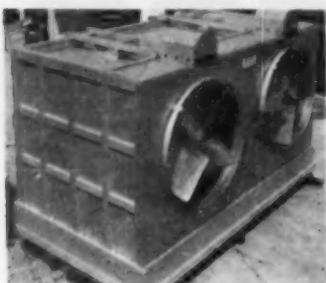
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& AIR CONDITIONING • NOVEMBER, 1955

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els 3 through 8 tons in capacity are direct driven, with totally enclosed motors; 10-20 ton models are belt driven, with the motor within the casing in a special water-tight compartment; 25-125 ton models are belt



driven with motor cover standard. The 80, 100, and 125 ton towers have dual fans and motors. All fill is heart redwood; casing is constructed of heart redwood and marine plywood. All towers readily disassembled for installation. Venturi sections are removable for maintenance and replacement.

BOLTLESS TOWER—*Dover Mfg. Co., Independence, Mo.* Can be assembled by two men in less than 20 minutes. Redwood or steel louvers

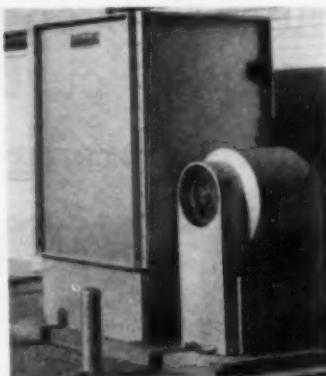


fit into slots of vertical posts. All metal parts are hot-dip galvanized after fabrication. Basin and crown are one-piece welded units, held together with single adjustable tie rod. Available capacities range from 3 to 15 tons.

SMALL-SIZE TOWERS — *Lilie-Hoffman Cooling Towers, Inc., St. Louis, Mo.* "Water-Master" cooling towers for residential and small commercial use are available in 3, 5, 8, and 10-ton sizes. Internal steel parts are mastic coated for sound deadening and rustproofing qualities. Exteriors are prime coated with

rust-inhibiting paint and finished in enamel. All models available with direct drive, vertical submersible pumps located in front end of basin. Pump with bronze impeller and shaft is submersed in water of basin without packing boxes or seals.

COOLING TOWERS—*Binks Mfg. Co., Chicago, Ill.* Improved 3-B series of dry blower cooling towers. These



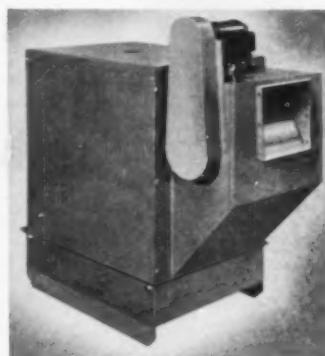
towers are available in single blower construction for refrigeration loads up to 40 tons, and in multiple blower construction up to 240 tons, on the basis of 78 F wet bulb rating.

WATER TURBINE TOWERS — *Kennard Corp., St. Louis, Mo.* "QT" outdoor cooling towers driven by an efficient low pumping head water turbine which eliminates costly out-



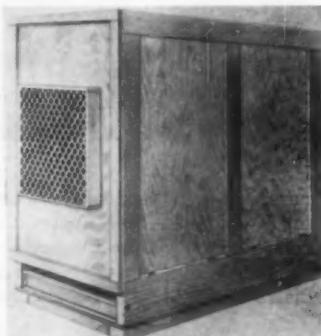
door electrical connections. Wetted deck is heart redwood and all other parts are corrosion resistant. Finished in natural green that blends with landscaping. Vertical air discharge does not disturb shrubs or passing persons, and low silhouette makes it easy to conceal.

LARGER TOWERS—*Larkin Coils, Inc., Atlanta, Ga.* Cooling tower line expanded to include 16 and 20-ton models, now making line complete from 2 to 20 tons. Propeller fans or centrifugal blowers are optional. Wetted surface of all-heart redwood



is used with nail-less interlocked construction. Low pumping head over tower and gravity type distribution basin are employed. May be used indoors or out. Bolted construction makes units easy to dismantle in the field.

INDOOR-OUTDOOR TOWER — *Toungate & Coats, Austin, Tex.* "Hideway" induced draft cooling tower in ratings from 2 to 15 tons designed for either indoor or out-



door installation on residential or commercial construction. All clear heart redwood construction; all fittings are galvanized. Aluminum fan blades are pitched 25-35 degrees to reduce noise. Water distribution is by gravity flow. Shipped completely assembled.

FIBER GLASS TOWER—*Baldwin-Ward Mfg. Co., Ottawa, Kansas.* "Duro-Lite" cooling tower with fiber

Continued on page 125

YOU WILL SEE



AT THE
9TH EXPOSITION
OF THE AIR
CONDITIONING
AND REFRIGERATION
INDUSTRY AT
ATLANTIC CITY,
NOV. 28 TO DEC. 1



WHAT'S BEEN HAPPENING AT THE "NEW SERVEL"

Greatly Improved Steel-Case Servel Supermetic Single-Cylinder $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$ and $\frac{3}{4}$ HP Condensing Units.

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Bigger Capacity in small packages in new Servel Supermetic $\frac{1}{4}$, $\frac{1}{3}$ and $\frac{1}{2}$ HP Capillary-tube type Condensing Units.

All Servel Supermetic Models for 1956 re-engineered for improved capacity and efficiency . . . many models redesigned . . . production lines and manufacturing operations streamlined to make possible better prices. These are but a few of the exciting moves that have been made at the "NEW SERVEL" in the past few months. The results will be a revelation to you when you visit SERVEL'S big 500 sq. ft. of new product exhibits and performance demonstrations at the Show.

If you don't attend the Show in Atlantic City, there's a factory representative in your area. Call on Servel NOW for applications assistance in planning your refrigeration requirements. Write, phone or wire . . .

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THE NAME TO WATCH FOR GREAT ADVANCES
IN REFRIGERATION AND AIR CONDITIONING

"What Would You Do?" Session To Highlight 20th Anniversary Meeting of ARW

A "What Would You Do?" session for wholesaler principals will be one of the highlights of the 20th anniversary meeting of Air-Conditioning & Refrigeration Wholesalers (ARW) Nov. 27-28 in the Claridge Hotel, Atlantic City.

Regular business sessions will be preceded by meetings of the manufacturers' relations and finance committees on Nov. 25, and by directors' meetings and luncheon on Nov. 26. Registration will open on Nov. 26, and that evening there will be a get-together and square dance for early arrivals in Trimble Hall.

Formal sessions will begin with a "kickoff" luncheon at noon on Nov. 27, at which Major Norman Imrie will speak on "Heat, Light and Power". First business session will follow at 2 p.m., and will cover officers' reports and election of new officers for 1956.

The "What Would You Do?" discussion will follow, with committee meetings and reports filling out the balance of the meeting period.

Officers' reception at 6:30 p.m. in the Park Lounge and the anniversary banquet and entertainment, including presentation of awards, will close out the day's activities.

Symposiums will open the Nov. 28 sessions at 9 a.m., and the annual business meeting will follow at 10 a.m. Speaker at this meeting, discussing "Industry Outlook for 1956," will be George S. Jones, managing director of ARI.

Following this, committee reports will be heard, and a TV-problem analysis discussion will precede an address by the newly-elected ARW president, the last item on the business program.

Technical Forums To Cover Controversial Topics at Annual Meeting of ASRE

BESIDES three technical sessions, the diversified technical program planned for the 51st annual meeting of American Society of Refrigerating Engineers will include a packaged air conditioner conference, a domestic refrigerator engineering conference, a conference on new fields for mechanical cooling, and six forums covering other timely subjects.

The ASRE meeting will be held in the Traymore Hotel, Atlantic City, Dec. 1-3, during the same week as the ARI Exposition.

Technical sessions will open on Dec. 1 with papers on "Heat Transfer at Simulated Altitudes", by W. L. Holladay, Holladay & Westcott; "Cascade Refrigeration Systems for Ultra-Low Temperatures," by D. J. Missimer, Pacific Refrigeration Co.; and "Reactions in F-22 Systems," by H. M. Elsey, Westinghouse Research Laboratories.

The six technical forums, all of the "let your hair down" variety, will cover: defrosting of low temperature evaporators; Freon vs. ammonia in industrial installations; economic comparison between wet and dry condensers; transportation refrigeration equipment; how can ASRE help promote realistic published product ratings?; and contaminants in a refrigeration system. General technical committee chairman John Engalitchoff, Jr. is supervising the setting up of these "off-the-record" sessions.

Second technical session on Dec. 2 will include papers on "Variation of Thermal Conductivity with Temperature of Insulating Powders," by Peter E. Glaser, Arthur D. Little, Inc., and Carl F. Kayan, Columbia University; "A Field Evaluation of the Performance of Vapor-Ventilated Insulation in a Large Freezer Ware-

Continued on page 122

Traditional "Information Please" Panels To Help Provide Answers for Members of RSES

A well-rounded program of technical topics will highlight the 18th annual convention of the Refrigeration Service Engineers Society Nov. 26-29 at the Ambassador Hotel, Atlantic City. RSES meetings are concurrent with the 9th ARI Exposition.

Following the usual registration period, educational meetings will open at 10 a.m. on Saturday, Nov. 26, with a welcoming address by Gov. Robert B. Meyner of Maryland, introduction of officers, and greetings from other industry associations. RSES president Charles G. Bell's address will be followed by the report of secretary H. T. McDermott, treasurer Carl W. Neisel, and reports of various standing committees.

Only educational talk will be a discussion of "Automotive Air Conditioning Service" by S. O. Wahamaki and R. F. Reshan of American Motors Corp.

Program on Sunday, Nov. 27, will open with the popular "Information Please" panel, and will be followed by talks on "Fundamentals of Air Conditioning" by D. C. Schaffer of Frigidaire Div., General Motors Corp.; "Sizing and Erecting Ductwork for Cooling," by Robert J. Waalkes, Hart & Cooley Mfg. Co.; "Pitfalls in Home Air Conditioning," by William Tyson, Unitary Equipment Div., Carrier Corp.; "Layout and Operation of a Small Repair Shop," by A. E. Manning, of Kelmore Service, Inc.; and "Servicing Refrigeration Units," by W. E. Glaser, Arthur D. Little, Inc.

eration and Air Conditioning Motors," by T. N. Schierloh, Delco Products Div., General Motors.

Family get-together in the Ambassador's Surf Room will close out activities for the day.

Meeting on Monday, Nov. 28, will be for members only, and will open with an "Information Please" session. A business session will follow, to include reports of convention committees and election of officers. Manufacturers Service Managers Club will hold its annual luncheon at noon.

The annual RSES banquet and entertainment will wind up the day's activities that night, in the Ambassador's Renaissance and Venetian Rooms.

Following the "Information Please" session opening the Nov. 29 meeting, the problem of "Drying Freon-12 and Freon-22 Systems" will be discussed by John H. Spence, service manager of Hussmann Refrigeration, Inc. and chairman of the RSES educational and examining board. "Changing Motor-Compressors on Hermetic Refrigerators in the Field" will be outlined by James Black, manager of field service for Philco Corp.

This will wind up the RSES business sessions, which have been timed to allow full attendance by members at all hours during which the Air-Conditioning and Refrigeration Exposition itself is open.

Sales Problems Are Central Theme of Talks Slated for 9th Annual Convention of NCRSA

TOPICS of interest to virtually every distributor and dealer in the commercial refrigeration business will be covered in the ninth annual convention of the National Commercial Refrigerator Sales Association, to be held Nov. 27-29 in the Hotel Traymore, Atlantic City, during the 9th ARI Exposition.

Registration will begin on Sunday, Nov. 27, following the annual luncheon meeting of NCRSA directors at noon. Regulation business sessions will be at 9:30 a.m. on Monday, Nov. 28, with a welcome address by NCRSA president George F. Wiedemer.

"Your Association in Action" will be outlined by Marie H. Lawton, NCRSA executive secretary, after which president Wiedemer will deliver his annual address. Then an address on "A United Front" will be given by J. W. Krall, president of McCray Refrigerator Co. Closing this session will be a talk on "Selecting and

Training Salesmen", by a speaker as yet unannounced.

In the afternoon session on Nov. 28, Miss Phyllis Brown, editor, Research Institute of America, will talk about "The Salesman's Wife". Then Dudley Cawthon, of Dudley Cawthon Inc., Miami distributor, will discuss the problem of "Keeping Salesmen Interested." "The Ideal Sales Meeting" next will be discussed by H. N. Corbin, general sales manager of C. V. Hill & Co.; Robert W. Mueller, editor of Progressive Grocer, will discuss "Refrigeration and the Modern Food Retailer", and "The Need for More Refrigeration Display for Frozen Foods," will be presented by George L. Mentley, general sales manager of the Birds Eye Div. of General Foods Corp.

Annual reception and dinner will follow on the night of Nov. 28 after the closing of business sessions.

Continued on page 123

Fair Trade, Union Activities To Be Discussed by Contractors at 10th Meeting of RACCA

COMMISSIONER Robert Secrest of the Federal Trade Commission will be among the speakers who will address the 10th annual convention of Refrigeration & Air Conditioning Contractors Association Nov. 26-29 in the Ambassador Hotel in Atlantic City.

Secrest will address the RACCA luncheon on Monday, Nov. 28, on "The History, Status and Outlook of the RACCA Complaint Against Ice Cream Companies and the History, Status and Forecast for Promulgation of 'Rules of Practice' for the Refrigeration and Air Conditioning Industry."

Registration for RACCA members will open on Saturday, Nov. 26, with committee meetings and a meeting of RACCA directors occupying most of the day. The RACCA Hospitality Room get-together will run throughout the day.

On Sunday, Nov. 27, registration will continue and the business meeting which opens at 9:30 a.m. will include the submitting of a slate of officers to the nominating committee, consideration of the 1956 convention

site, discussion of the credit group insurance plan, and other business.

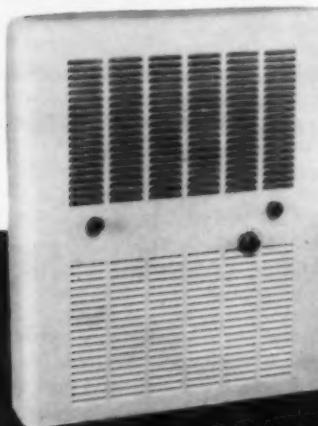
General meeting will follow that afternoon. Chairmen of the national committees will report, and "Joint Committee Objectives" will be outlined by C. J. Voss, special representative of the Refrigeration Department, United Association. Local association presidents will make their reports, and RACCA national president A. M. Palen will report to the delegates.

In the evening, the annual RACCA all-industry get-together reception and cocktail party will be held in the Embassy Room of the Traymore, followed by the all-industry dinner at which "Miss RACCA" will draw numbers for prize awards.

Business meeting on Monday, Nov. 28 will open at 10 a.m. and will include report of the nominating committee and election of president and directors for 1956 terms. Also voted on at this session will be the selection of the site for the 1956 national RACCA meeting.

Continued on page 122

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122

RACCA PROGRAM . . .

Continued from page 121

The annual luncheon meeting, at noon, will be directed by Harvey W. Hottel, convention chairman, who will introduce the speakers. President Palen will welcome members, after which Maurice Firestone, field representative of Typhoon Air Conditioning Co., will speak on "The Current Status of the Refrigeration and Air Conditioning Contractor in This Expanding Market."

Following this, FTC Commissioner Secret will speak. Next will be Victor Nyborg, president of the National Association of Better Business Bureaus. He will discuss "The History and Status of the Public Relations Program for the Refrigeration and Air Conditioning Industry in Cooperation with National and Local Better Business Bureau."

Joseph F. Monahan, UA general organizer and convention representative, then will outline "The United Association and RACCA Relations."

Closing remarks by retiring RACCA president Palen, and the installation of the newly elected president and directors, will close the session. A meeting of the president-elect and the directors on Tuesday, Nov. 29, will close formal convention activities. Both RACCA headquarters and hospitality suite will, however, remain open to all industry members during the Exposition.

RACCA officials emphasize that all of the organization's open meetings are open to all refrigeration and air conditioning contractors, whether or not they are RACCA members. Host association for the convention is RACCA of New Jersey, which is arranging special entertainment both for contractors and their ladies. L. Filipone, past president of RACCA of New Jersey, is chairman of the convention activities committee.

ASRE PROGRAM . . .

Continued from page 120

house," by Profs. E. R. McLaughlin and E. R. Queer of Pennsylvania State University; and "It Pays to Provide Comfort Cooling for Hogs," by Prof. E. W. Fontaine, Purdue University.

Concurrent with this session will be the domestic refrigerator engineering conference, chairmanned by F. L. Tarleton, Hotpoint Co. Topics to be covered in the conference include planning the kitchen, designing built-ins, designing the kitchen, building the kitchen, and selling built-ins.

Afternoon session will be devoted to a conference on new fields for mechanical cooling. S. J. Williams Jr. is chairman. Speakers will include Prof. M. K. Fahnestock, University of Illinois, on "Temperature, Humidity and Air Motion Related to Human Comfort"; Dr. Samuel Brody, University of Missouri, on "Energy Exchange and Thermoregulation in Cattle and Man 50 to 105 F Ambient Temperature"; Dr. F. N. Andrews, Purdue University, on "Effects of Climatic Environment on Swine"; Dr. W. O. Wilson, University of California, on "Mechanical Cooling of the Human Environment."

fornia, on "Effects of Environment on Chickens"; and Dr. H. A. Senn, Dept. of Agriculture of Canada, on "Effects of Temperature and Humidity on Plants".

Morning technical session on Dec. 3 will feature papers on "Boiling Heat Transfer in Horizontal Tubes," by Merl Baker, University of Kentucky; "Determination of Boiling Point and Boiling Range of Refrigerants", by W. H. Decker, L. B. Smith, and A. D. Turisini, General Chemical Div., Allied Chemical & Dye Corp.; and "Condensing Heat Transfer," by R. C. Potter, Kansas State University.

Air conditioning conference the same morning will be under the chairmanship of R. A. Gonzalez, Airtemp Div., Chrysler Corp. With room air conditioners as the conference subject, discussions will cover advertising and rating, aluminum heat exchangers, in-wall units, and quiet units.

The traditional ASRE cocktail party and dinner dance will be held on the night of Dec. 2, and a special research exhibit will present some 20 noncommercial displays of air conditioning and refrigeration developments. Justin Neuhoff is chairman of the meeting.

Among those assisting him are Donald H. McCuaig, reception; Mark E. Mooney, entertainment; and John E. Rhodes, secretary.

NCRSA PROGRAM . . .

Continued from page 121

A panel session on "Making the Sale" will open the sessions on Nov. 29. Ten-minute talks will be given by C. S. White, of Modernized Equipment Co., Cincinnati, on "Developing Prospects"; Lee Hayes, Detroiter Refrigerator Mfg. Co., on "Preparing and Presenting the Layout and Quotations"; Sherman W. Bushnell, Refrigeration Engineering Co., Seattle, on "Concluding the Sale"; Art Perez, Tyler Refrigeration Corp., on "Installing the Equipment"; S. W. Davis, Jr., of S. W. Davis Jr., Greensboro, N. C., on "Store Opening"; and H. A. Hattenbach, of Hattenbach Co., Cleveland, on "Was It Worthwhile?" A summarization by president Wiedemer will close this part of the program, after which questions from the floor will be answered.

W. J. Stelpflug, president of Hussmann Refrigeration, Inc., will outline "Why I Believe the Distributor is Important to the Manufacturer in the Distribution of Commercial Refrigeration Products".

At the afternoon meeting on Nov. 29, "The Benefits of a Good Accounting System" will be outlined by S. G. Taylor, of Taylor Refrigerator Co., Des Moines; Ray Winther, of Ray Winther Co., will talk on "How Equipment Leasing Can Increase Profits"; Don Petrone, president of Typhoon Air Conditioning Co., will talk about "Building More Sales and Profits With Packaged Air Conditioning", and "The Future of Frozen Prepackaged Meat and Its Effect on the Store of Tomorrow" will be discussed by a speaker still to be selected.

Reports of the nominating committee, election of officers, introduction of the new officers and other new business will close out the convention program.

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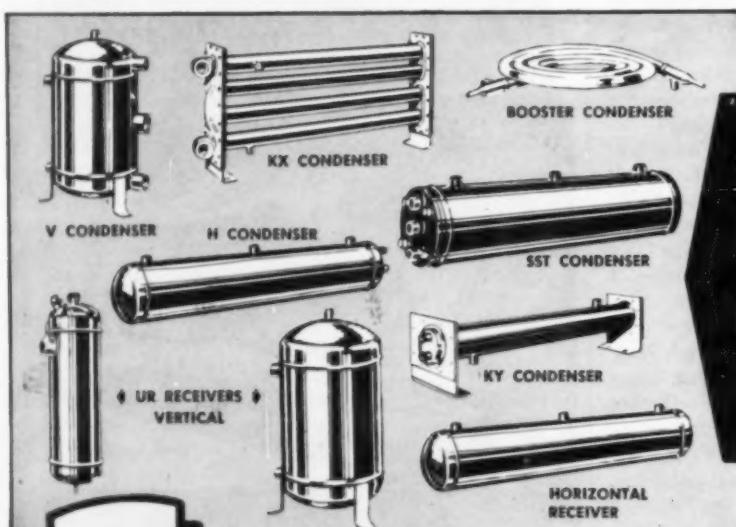
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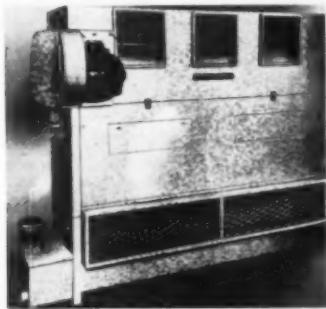
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COOLING TOWERS . . .

Continued from page 118

glass housing. Towers are rustproof, fireproof, acid resistant, and need never be painted. Fillings are of California redwood. Fans are deep pitched for maximum draft at low speed. Shipped assembled except for mounting the motor. Sizes range from 3 to 10 tons. Guaranteed for 20 years. Towers are so light in weight that two men can handle any model up to 10 tons.

COOLING TOWERS — *Acme Industries, Inc., Jackson, Mich.* "Flow-Mizer" line of cooling towers in



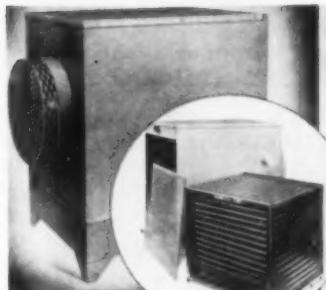
sizes from 15 to 100 tons at 75 F wet bulb claim water saving efficiently up to 97%. Centrifugal blowers used to induce constant velocity air flow. Wetted metal deck principle of water-to-air heat transfer employed. Sump located outside of tower for convenient service.

WATER SAVER—*Bush Mfg. Co., West Hartford, Conn.* All-copper construction of wetted deck surfaces



and eliminates does away with deterioration problem. Another feature is interchangeability of parts. Can be arranged as either cooling

tower or evaporative condenser merely by utilizing either the all-copper inner-fin coil or the copper decking. Both types can be equipped with either blower or propeller fan.



ing or replacement. Convenient electrical and plumbing connections make installation fast and easy.

NEW DESIGN TOWER — *Silvercraft, Inc., Louisville, Ky.* Distinguished by all aluminum and stainless steel construction, these units can provide 2, 3, 4, 5 and 7½-ton capacities by interchange of fan blades only. Entire all aluminum wet deck cartridge slides out smoothly on stainless steel rails for clean-

JARROW'S new money-making gasket for servicemen

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TOUGH, FLEXIBLE VINYL PLASTIC
EXTRUDED COVER PLUS THE WELL
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AIR HANDLING EQUIPMENT.. Continued from page 114

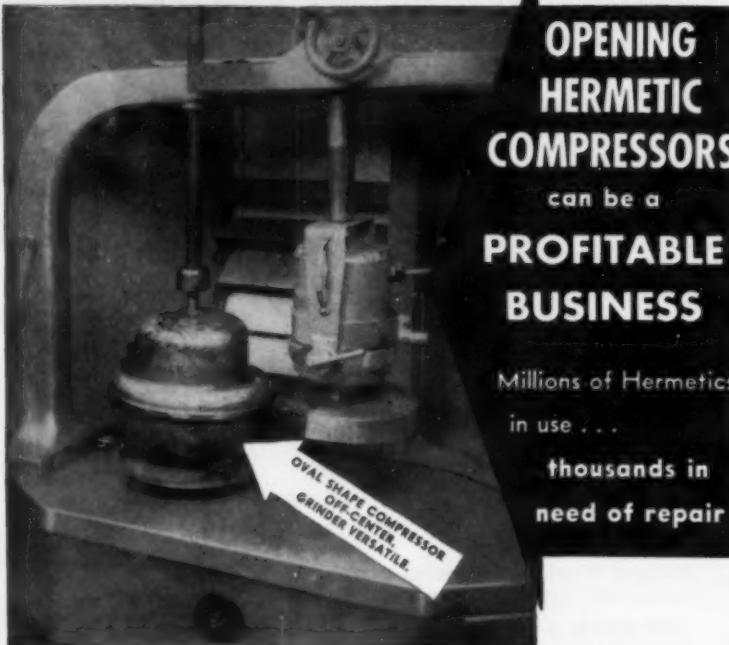
removable key. Unit is constructed of all-welded, 20-gauge steel, and is equipped with sponge rubber gasket to provide tight seal. Finish is light gray enamel.

DUCT CONNECTORS—*Grant Wilson, Inc., Chicago, Ill.* "Flexi-Duct" and "Vibra-Stop" flexible connectors for air conditioning ducts. Flexi-

Duct is a woven asbestos flexible tape in rolls 6" wide and 50' long. Can be taped or bolted to equipment or ducts. Vibra-Stop connectors are made of asbestos or canvas, with a 4" strip of the basic material factory sealed to a 4" band of No. 1 prime galvanized metal on one side and to a 3" ban on the other. The combined material comes in 100' rolls.

MECHANICAL AIR FILTERS—*Trion, Inc., McKees Rocks, Pa.* Permanent cleanable filters of panel impingement type consisting of

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EASILY OPENS ANY COMPRESSOR
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specially formed galvanized screen filtering media arranged in closely spaced rows of double air scoops. Available in single panel or multiple banks. Self-washer type has automatic washing attachment which thoroughly cleans filter banks of collected dirt. Traveling curtain type



has motor-driven assembly which rotates filter panels through an oil bath for constant cleaning of filtering media.

ELECTRONIC CLEANER—*Radex Corp., Chicago, Ill.* "Dustronic" electronic air cleaner can be attached to any forced air furnace. Portable unit also is available for use in a single room. Furnace unit is so located that it filters unheated



or return air before it enters the heat chamber. A series of mechanical and electrostatic filters inside the unit catch practically all impurities. Electrostatic collector plates can be washed off when necessary. Recoating plates with an adhesive restores former efficiency.

CLEANABLE FILTER—*Stoddard Industries, Inc., Chicago, Ill.* Designed to last the life of the equipment, these filters are made of woven plastic which can be cleaned quickly—average time is claimed to be only 2½ minutes—and put back in service. Ordinary dust and dirt are flushed out with tap water; oil and grease deposits can be removed easily by scrubbing with a sponge or brush and a detergent. Five models range from equivalent of ½" to better than 1" of conventional filter. Frame of ½" rust-proofed steel is provided.

RESIDENTIAL UNITS . . .

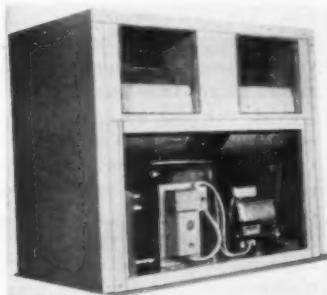
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COOLING UNIT—*Janitrol Heating & Air Conditioning Div., Surface Combustion Corp., Columbus, Ohio.* New models in 2 and 5-hp sizes are



planned for addition to Janitrol line in 1956. Present model, 3-hp cooling unit, has had two-year test in seven states, and is credited with high performance factor—8.6 Btu per watt under ASRE conditions, including condenser fan operation.

CONVERSION UNITS—*Typhoon Air Conditioning Co., Brooklyn, N. Y.* "Convert-to-cool" units consist of separate sections; cooling



coil is installed in ductwork atop standard forced air furnace while air-cooled condensing unit may be remote. Air-cooled condenser assembly includes hermetic compressor. Cabinet metal and insulation are extra heavy. Models are available in 2, 3 and 5-ton sizes.

HOT-COLD ROOM UNIT—*Fedders-Quigan Corp., Buffalo, N. Y.* "Fedair" unit is for wet heating and cooling in homes, offices, and hotels. Heated or chilled water is obtained from remote boiler or chiller. Room

unit replaces conventional radiators, thus simplifying conversion of existing installations.

COMBINATION UNITS—*Shana Mfg., Inc., Chicago, Ill.* Cooling-heating units in 24 models offer choice of 2 or 3-ton capacities for summer and ratings of 85,000, 105,000, or 130,000 Btuhr for winter. Air-cooled and water-cooled styles available. Included are all heating and



cooling controls, blower and motor, and a common top over plenum. Other models have heating and cooling in separate matching cabinets.

ADD-ON COOLING UNIT—*Fluid Heat Div., Anchor Post Products, Inc., Baltimore, Md.* "Fluidaire" (Model AC-3) is a cooling unit for addition to a furnace. It is factory



charged and sealed. Evaporator coil is in supply plenum to reduce ductwork. Flexible 5' refrigerant tubing permits some freedom in locating unit. Model is rated at 3 hp, with

34,000 Btuhr, sufficient for most of the residential market. Condenser is air-cooled, and unit uses furnace's blower system.

WATERLESS HOME UNIT—*Lingle Refrigerator Co., Kansas City, Mo.* Packaged residential cooler is in 2, 3 and 5-ton sizes, and in upright, split, and horizontal styles. Units use Tecumseh compressors, Delco motors, Viking fans, and General controls. Installation utilizes existing ducts.

HOT-COLD COMBINATION—*Utility Appliance Corp., Los Angeles, Calif.* One-package includes both heating and cooling, but installation of cooling components may be deferred. In two sizes, capacities are 2 tons cooling with 75,000 Btuhr heating, and 3 tons with 105,000 Btuhr. Resilient mounting provides quiet operation. Cabinet is entirely lined with Fiberglas insulation.

COMPACT HOME UNIT—*Burnham Corp., Irvington, N. Y.* "Hide-Away" residential cooler requires only 6 sq. ft. of floor space and



needs no water. It is designed for application with minimum ductwork, and may be installed in any accessible area. Dehumidifies air while cooling it. Three sizes are available — 1, 1½, and 2 hp.

HOME COOLING MODELS—*Day and Night Div., Carrier Corp., Monrovia, Calif.* "Refreshair" air-cooled units for residential cooling are in 1½, 2½, and 3½-ton sizes, and are designed for use either separately or in conjunction with a furnace. For the latter use, blower may be omitted. The 1½-ton unit cools at 17,500 Btuhr and has dimensions of 33 x 25 x 18".

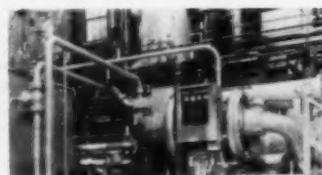
HEAT EXCHANGERS . . .

Continued from page 64

at expansion valve. Unit has copper tubes with aluminum fins, and weatherproof steel casing. All headers and return bends are protected and located in air stream. Motor heat is not projected across the coil.

WATER CHILLERS — *Trane Co., LaCrosse, Wis.* "Centravac" line of centrifugal water chillers is for in-

door or outdoor installation without protection enclosures. Hermetic construction and automatic operation of



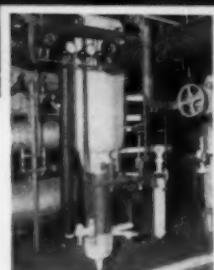
basic unit permit outdoor use with only minor modifications. Purge unit, control panel, conduit boxes and capacity control mechanism are

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★ LIQUID RECIRCULATOR

- Eliminates slugging compressors.
- Increases efficiency by full flooding.
- Easily connected into an existing system.
- Partial unit available to use existing suction accumulator or to replace mechanical liquid pumps.
- Washes oil out of evaporators.
- Sized for any tonnage, any refrigerant.

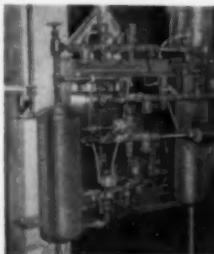
The only patented system for catching excess liquid in the suction line and recirculating it to the evaporators, using no mechanical pumps.



★ ATMOSPHERIC SPRAY EVAPORATIVE CONDENSER

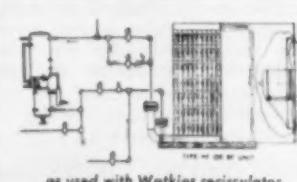
No fans. No blowers!

- Engineered to handle high overloads.
- Built-in water-cooled oil separator.
- When so ordered, will condense two or more refrigerants in one unit.
- Sized for any tonnage, any refrigerant.



★ FLASH GAS ECONOMIZER

- Feeds liquid at constant pressure the year around.
- Removes flash gas ahead of evaporators.
- Operates at lowest practical liquid supply pressure.



★ HOT GAS DEFROST-FREEZER EVAPORATOR

- For blast or storage freezers.
- Fin coil with fan and pan coil including valves and controls for hot gas defrosting.
- Available in multiples of 3 tons.
- Automatic or hand operated.

EQUIPMENT FOR MORE ECONOMICAL OPERATION • Write for Bulletins

J. E. Watkins Co.

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Some sales areas still open — inquiries for representation invited

Circle No. 81 on Reader Service Card

weatherproofed and have electric heaters to deal with condensation. The outdoor version of the Centravac was developed mainly for use in large existing buildings where equipment space it at a premium. Units are available in capacities from 50 to 800 tons.

HEAT EXCHANGER — *Carl Buck & Associates, Essex Falls, N. J.* Improved "Camac Karbate" bayonet



heat exchanger has heavy flanges which reduce space requirements for installation. Units can be used either for cooling or heating, or both. They can be provided in any length to 6', and have large capacity in relation to size.

TROPIC-AIRE & CARRIER JOIN IN TRUCK COOLING

A development, manufacturing and marketing arrangement between Carrier Corp. and the air conditioning division of Tropic-Aire, Inc. marks their joint entry into the truck-trailer refrigeration field. The two companies plan to produce a complete line of trailer refrigerating units under the trade name Tropic-Aire/Carrier.

A similar program, put into operation in 1940, has enabled the two firms to equip most of the air conditioned buses in operation today.

Carrier refrigerating machines and coils will be used in the new trailer units, and all manufacturing, sales and service will be handled by Tropic-Aire.

SHANA APPOINTS TWO IN CALIFORNIA

Smallcomb Electric Co. and Ventilating Equipment Co., both of Los Angeles, have been appointed distributors for the southern California territory by Shana Mfg. Co. Both firms will carry the complete line of Shana water-cooled and air-cooled air conditioning units.

Circle No. 74 on Reader Service Card

Circle No. 73 on Reader Service Card

ABOUT PEOPLE...

Continued from page 24

Perley K. Barker has been appointed general manager of Heat-X, Inc., wholly-owned subsidiary of Bush Mfg. Co. Since 1951 he has been representing Heat-X and Bush in the northern New England territory as a sales engineer. Prior to that time, Barker had charge of refrigeration for the New England division of A & P Tea Co.



Don H. Davidson has been named field sales manager for Mueller Climatrol Div., Worthington Corp. In his new capacity, Davidson will supervise Mueller's national sales staff and work with district sales representatives. He had formerly been sales vice president for Calcinator Corp.



Burl C. Brown has joined the engineering and research department of National-U. S. Radiator Corp. as manager of air conditioning research. Brown came to National-U. S. from Coleman Company Inc., Wichita, Kan., where he served as that company's first air conditioning designer.



Ralph A. Crane has been named market research manager of Du Pont Co.'s "Kinetic" Chem-

Giffy Fit



The NEW DOUBLE STRAP AIR CONDITIONER

PROTECTOR

The only REAL fit for ALL model window air conditioners.

- Only SIX sizes and stock numbers.
- Attractive forest green fabric.
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A fast and easy seller.

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complete line—
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- Air Conditioning Units — 3 to 15 HP
- Comfortaire Heat Pumps — 2 to 15 HP
- Packaged Water Chillers — 3 to 15 HP
- Forced Air Convector
- Air Cooled Condensers — 3 tons and up
- Cooling Towers — 3 to 60 tons

Representatives and Distributors:
A few limited sales areas still available!

AMERICAN COILS CO.
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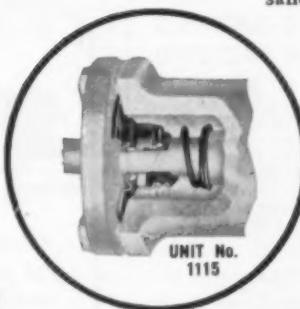
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performance-proved in many thou-
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during almost a
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sizes for Com-
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and Household
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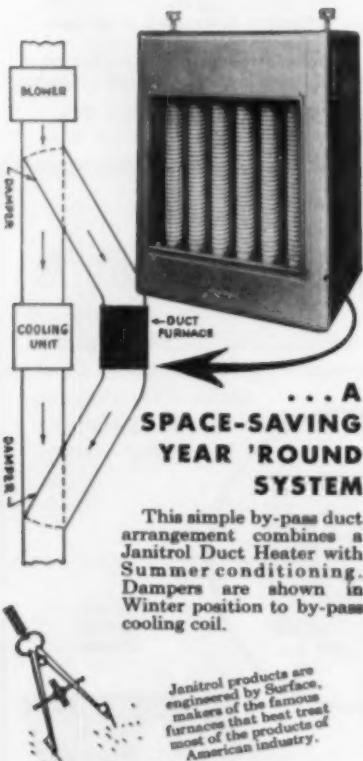
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Cooling experts know the Janitrol name means dependability and quality. The Janitrol Gas-Fired Duct Heaters install fast in either heating and/or cooling systems. They have a proved record of amazing durability . . . since 1940, in over a million heat exchanger tubes, less than $\frac{1}{4}$ of 1% have been replaced for any cause!

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ALSO MAKERS OF SURFACE INDUSTRIAL FURNACES AND KATHABAR HUMIDITY CONDITIONING.

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130

icals Div. Crane, who has been with Du Pont since 1940, formerly held the position of supervisor of employment of technical personnel. He succeeds Joseph C. Hoopes who earlier this year was named manager of wholesale refrigerant sales by the company.

Ray R. Forseille, formerly vice president in charge of production, has been appointed vice president in charge of sales by Baltimore Aircorl Co., Inc. He succeeds **Richard W. Pentecost** who has resigned as general

sales manager to become the company's official representative in the state of Maryland. **William E. Kahlert**, formerly with Trane Co. and McQuay, Inc., has assumed the duties of production manager.

Raymond J. Talty has been named midwest district manager, in charge of all sales and warehouse activities originating in Chicago, for Superior Valve & Fittings Co. He replaces **William W. Sauter** who

has resigned. For the past eight years, Talty has been assistant sales manager in the Chicago district for Mueller Brass Co.

Bruce W. Reid has been appointed direct factory sales engineer for refrigeration products and air conditioning coils of McQuay, Inc., in Kansas, Missouri, Colorado, New Mexico and southern Illinois.

Reid, who has served as chief engineer of City Products Corp. for the past five years, will headquartered in Kansas City, Mo.

Paul G. Kollberg has been appointed field engineer by Henry Valve Co. His new position will primarily involve analyzing new industrial developments and application of company products to those fields. Kollberg had previously been Chicago branch manager for the engine division of National Supply Company.

John R. Schreiner, technical secretary of Air Conditioning and Refrigeration Institute, has joined the advanced engineering staff of Carrier Corp.



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Performance-Proven Units for every Refrigeration and Air-Conditioning Application.

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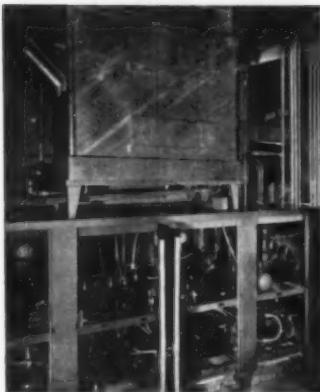
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ENGINEERS AND MANUFACTURERS OF REFRIGERATION
AND ENVIRONMENTAL TEST EQUIPMENT

Circle No. 76 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

A SPACE-SAVER



UNIQUE INSTALLATION of supermarket refrigeration equipment has saved space and money for Summit Trading Co., Tacoma, Wash. The installation, by Wingard & Co., Inc., involved mounting a multi-circuit evaporative condenser atop a special sound insulated and ventilated cabinet housing a total of 10 compressors mounted on an angle iron rack. Requiring only 25 square feet of floor space, the cabinet is sound insulated and ventilated with mechanically circulated and filtered air. These features are designed to reduce service calls due to dirty units and lack of sufficient ventilation for motors and compressors.

A. O. SMITH EXPANDS KANKAKEE PLANT

An expansion program, designed to add 270,000 sq.ft. of additional manufacturing and storage space to its Kankakee, Ill., works, has been started by A. O. Smith Corp. Expected to be completed by late 1956, the program will increase present plant and office area by over 50%. The company's line of home heating and air conditioning equipment is manufactured in the Kankakee plant.

SIX NAMED TO HANDLE G-E PRODUCTS

General Electric Co. has announced appointment of six companies to handle various of its air conditioning or related products.

Florida General Supply Corp., Miami, was named wholesaler for packaged air conditioners and Weathertron products. F. B. Gardner Co., Albuquerque, N.M., will be a distributor and dealer for packaged air conditioners. South Bend Electric Co., South Bend, Ind., will be a wholesaler of Weathertrons and water coolers.

Automatic Heating Supply, Inc., Springfield, Ill., will be a wholesaler for Weathertron units.

Seither & Cherry Co., Inc., Keokuk, Iowa, was appointed as a retailer for Weathertrons. N. M. Adema & Son, Buffalo, N.Y., will retail home heating and cooling products.

SERVEL NAMES TWO AS DISTRIBUTORS

Appointment of two new distributors was announced recently by

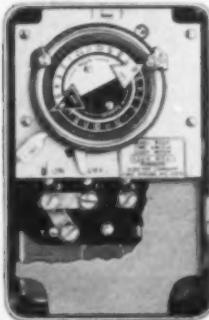
Servel, Inc. Isotherm Co., Bakersfield, will handle Servel units in Kern County, California. Montefusco Heating & Sheet Metal Co. will do similarly in the area of Peoria, Ill.

The California concern is managed by three partners: Rowell Smith, Edward E. Powell, and Benjamin Greene. Executives of the Peoria firm are: Anthony Montefusco, Jr., owner; Edward G. Cannavan, general manager; and William Armstrong, service manager.

"For compressor shutdown defrosting
I buy **PARAGON 3400 SERIES**
time switches because they give me . . .



**more years of trouble-free
service!"**



Smart business? You bet! What's more important than cutting service call-backs or reducing food spoilage? Key to the 3400 series continuous, uninterrupted service is its industrial-type, 4-watt motor. This heavy-duty motor — exclusive with Paragon — has a minimum life expectancy of 5 to 7½ years — many last 12 years or longer!

Add to this the many patented construction and operation features found in all Paragon 3400 series in your **BEST BUY** for all types of commercial refrigeration defrosting and air conditioning applications. Available in 120-V, 60 cycle and 240-V, 60 cycle; 30 Amps. 1 HP types.

VISIT US

in Booths 651-652 at the All Refrigeration
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November 28 — December 1

Also write for complete facts on these famous Paragon timers.

PARAGON ELECTRIC COMPANY
TWO RIVERS, WISCONSIN



Circle No. 77 on Reader Service Card

DAVIES CO. REPRESENTS UNARCO IN S. AFRICA

Hubert Davies & Co., Ltd., one of the three largest sales and engineering firms in South Africa, has been franchised as a distributor for the Union Asbestos & Rubber Co.'s heating and air conditioning products.

The Davies Co., with headquarters in Johannesburg, has branches in 16 cities in the Union of South Africa, including Port Elizabeth, Durban, Cape Town, East London, and Victoria Falls.

DRAYER-HANSON UNITS COOL TWIN STORES

Drayer-Hanson had "identical twins" recently, when it received a duplicate order for air conditioning identical branch outlets of Broadway-Hale, Inc., Los Angeles department store. The twin stores, located in Anaheim and Panorama City, are identical in design, construction, interior and exterior decor. Both stores will utilize Drayer-Hanson "Flexizone" central heating and cooling systems, which give individual or variable

control to separate zones of building simultaneously. Each system employs two 385-ton centrifugals, a single and double cell cooling tower, two boilers and heat exchanger and will utilize 80% return air and 20% fresh air.

Both buildings were designed by Welton Becket, F.A.I.A. and Associates. Cooling system was installed in the Anaheim branch by Mehring & Hanson Co., Los Angeles, and in the Panorama City store by F. B. Gardner Co., Inc., Los Angeles. Drayer-Hanson was represented in the transaction by Air Conditioning Supply Co., Los Angeles.

RECOLD NAMES OUTLET IN UTAH AND IDAHO

Refrigeration Engineering, Inc. products under the trade name, Recold, will now be distributed in Idaho and Utah by Refrigeration Distributors Corp., Salt Lake City.

Re-Strib-Co headquarters are at 132 So. 2nd West, Salt Lake City. Ted R. Brown is president and general manager. A division of the company in Boise at 116 South 23rd St. is managed by Raymond Payne.

SPOKANE DISTRIBUTOR NAMED BY COLEMAN

Hughes & Co., Spokane, Wash., has been appointed distributor of Blend-Air heating and air-conditioning equipment by Coleman Co., Inc. The firm will serve Coleman dealers in eastern Washington, northern Idaho, and western Montana. Sales and service operations will be handled by Don Disotell, manager of the distributor's warm-air heating department.

TRAGESER APPOINTED BRYANT DISTRIBUTOR

William E. Trageser has been named distributor in northwestern Pennsylvania for Bryant Div., of Carrier Corp. Located in Erie, Pa., the Bryant-Trageser Co., will service and supply Bryant dealers in Erie, Crawford, Venango, Warren, Forest, McKean, Elk, Cameron, Potter and Tioga counties in Pennsylvania; Cattaraugus and Allegany counties in New York state, and Ashtabula county in Ohio.

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Circle No. 78 on Reader Service Card

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

An Efficient Trailer Cooling Unit Hides Behind False Front

Refrigeration of milk and other dairy products in over-the-road shipments is provided by an unusual system in the case of the Tip Top Creamery Div., Beatrice Foods Co., of Vincennes, Ind.

For more than a year this company has been operating a 30-ft. trailer with a completely mobile refrigeration system built into a "false front", and has plans for adding two similar units to its fleet.

The condensing unit is an R.C. 200 Kramer Trenton "Unicon," mounted high inside the trailer's extended front section. For evaporating in the main section, a C. M. 265 Kramer "Coolmaster" coil is used.

Inexpensive metal grilles at the forward end assure an ample supply of air, even when the truck-trailer unit is not in motion.

Power for operation of the refrigeration is supplied during transit by a Kohler 5-Kw electric plant which also is located in the extended forward section. When truck is making long stops, however, current for the cooling system may be obtained by plugging into a public utility outlet. A small transformer is used when outside current is being obtained.

Temperature in the trailer is controlled thermostatically, allowing the mobile electric plant to idle when the current demand is off. This system permits a rapid pull-down and an even load temperature to be maintained.

Because of the simplified mounting of the equipment in the trailer, all parts are easily accessible for servicing.

G.E. NAMES TWO NEW HEAT PUMP RETAILERS

Moran & Co., Bloomfield, N.J., and Horton Co., Hartford, Conn., have been appointed retailers of the General Electric Co.'s "Weathertron" heat pump. The Moran company will distribute the units in the Essex County area and the Horton company will serve the Hartford area.



FALSE FRONTS are handy in commercial refrigeration as well as in the garment trades, as this tractor-trailer unit demonstrates. Behind the pleasantly curved front section of the trailer is a condensing unit and a 5-kw electric plant, for cooling dairy products in over-the-road transit.

ESTON REVISES ROCKY MOUNTAIN DISTRIBUTION

A revised territorial distribution arrangement of the Rocky Mountain area has been announced by Eston Chemicals Div., American Potash & Chemical Corp. Under the new plan, the states of Kansas and Nebraska have been added to the territory which includes Arizona, Colorado, New Mexico, Utah and Wyoming presently covered by J. N. Marshal Co. of Denver.

ELECTRONIC FILTERS PROTECT DUCT LINERS

The largest office building in the world ever to be completely air conditioned will also have the world's most completely conditioned air. This distinction goes to New York's brand new Socony-Vacuum building where all air entering the building will not only be brought to comfortable temperature and humidity but will be electronically cleaned of 95% of all foreign matter.

The decision to use electronic cleaners having 95% efficiency is rather unusual since the standard 90% efficient units have proven to be so effective that they are universally accepted for hospital operating rooms, food processing plants and other such buildings.

The reason for insisting upon this extra margin of cleanliness lies in the protection of sound absorbing liners found in the high velocity ventilating system of the building. These porous liners absorb dirt as well as sound, and would normally have to be replaced after a period of years due to loss of sound deadening prop-

erties. In a building the size of the Socony-Vacuum edifice this replacement cost would become a very sizable figure. To avoid this cost the extra 5% efficiency provides a safety factor which the engineers consider worth the additional expense.

Modern architects and engineers no longer regard air conditioning to be complete without air cleaning, but this is the first time that 95% cleaning efficiency will have been accomplished on a commercial scale.

Standard cleaners will remove from the air particles so small that they can be seen only under an electron microscope, but the Trion electrostatic air cleaners specified at Socony will remove twice the negligible pass-through of the 90% efficient units.

WYATT BROWN CO. NEW LIPMAN DISTRIBUTOR

Wyatt R. Brown Co., of San Francisco has been appointed distributor for Lipman "Ice Boy" ice machines by Lipman Div., Yates-American Machine Co. The Company will carry a complete stock of the machines and will serve the northern California area.

WORTHINGTON NAMES TEXAS DISTRIBUTOR

Straus-Frank Co., Houston, has been named wholesale distributor for Worthington Corp.'s line of air conditioning and refrigeration products. The company will provide sales, engineering, service and warehouse facilities in Dallas and north Texas, as well as in Houston and east Texas.

SURVEY REVEALS HOME CONDITIONING BENEFITS

A survey recently conducted by Worthington Corp. among homeowners using its year-round residential units discloses that people living in air conditioned homes feel better, sleep better and have more time and energy to spare.

The homeowners surveyed reside in 23 of the 48 states, representing a comprehensive cross-section of the country.

Of the homeowners surveyed, 40% responded and here are some

of the results shown in percentages based on the 40% response figure:

63% reported improved appetites among individual members of family.

75% serve more hot meals in summer.

58% reported an improvement in dispositions of individual members of family.

43% reported they have more recreation time on their hands.

63% reported they have more energy.

65% reported improvement in general health of family.

40% say they suffer from less colds than before.

48% reported less suffering from allergies, asthma and sinus conditions. (One homeowner commented that air conditioned living helped alleviate hay fever suffering; another said it eliminated prickly heat problem so prevalent in summer months.)

75% reported street noises less noticeable.

65% reported dusting time definitely cut down from daily to weekly, and from daily to only 2 or 3 times per week.

40% reported use of vacuum cleaner changed from bi-weekly to weekly and from weekly to every 2 or 3 weeks.

Brand new idea ...in testing gauges

It's the new "Serviceman" maximum pressure gauge...

Another example of Marsh coming up with an ingenious idea to make refrigeration servicing easier and better!

This time it's a new type of maximum pressure gauge — a gauge that shows top pressure with extreme accuracy, whether you make a short test or leave it over night.

The secret is a check valve that traps the pressure in the bourdon tube until you release it with that handy push button. Then the pointer jumps back to zero. It's so convenient and useful you'll wonder how you ever got along without it!

This Marsh innovation is incorporated in the highly accurate deluxe "Serviceman" testing gauge with 400 lb. scale . . . dressed up in a handsome, polished brass case with a knurled screwed ring which gives quick access to the Marsh "Recalibrator" to keep it always accurate.

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INSTRUMENTS

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One family reported a \$50 a year saving in rug cleaning; three families reported they saved on drapery and slipcover cleaning — one saved \$50; another \$15; and the third, \$60. One family reported they saved \$100 on cleaning of clothes.

48% reported they now spend their vacations at home. One family reported they now take a winter vacation; another family said they have an air conditioner in their summer home; and another family said the children keep them at home.

Average operating costs for cooling per year indicated by the answers in the survey were: Southwestern area, \$137.75; Southern area, \$73.33; Southeastern area, \$119.00; Eastern area, \$87.50; Central area, \$93.00; and Western area \$87.50.

DOVER DESIGNS BLOWER FOR COOLING TOWERS

A centrifugal blower designed and engineered for use on cooling towers where duct work increases normal static pressure has been introduced by Dover Mfg. Co. Intended specifically for Dover "CF" towers, this blower unit is available for towers with capacities ranging from 5 through 100 tons.

With the use of this optional blower, the company states, tower capacity rating can be maintained against total static pressures as high as $\frac{1}{2}$. This type of tower is particularly suited to applications where extremely quiet operation is desirable.

The blower makes use of a single-inlet, instead of a double inlet, providing greater efficiency and eliminating uneven evaporation, it is claimed. Entire rotor and scroll are hot-dip galvanized after fabrication to assure protection against rust and corrosion.

SUTTON TO SELL CENTRAL SYSTEMS AS APPLIANCES

A new merchandising program designed to sell "Vornado" central system air conditioners through retail appliance stores has been launched by O. A. Sutton Corp. The plan calls for an initial campaign to establish basic selected appliance dealerships for the central system equipment.

Distributors will contact appliance dealers to explain Vornado's special floor demonstrator plan. This plan is designed to get sample units on dealer display floors, and to help dealers establish key demonstration homes throughout their trading areas.

Special purchase incentive programs to encourage dealer salesmen to install units in their own homes, and a complete training program for dealer salesmen, are included in this plan to help establish the groundwork for appliance store sales.

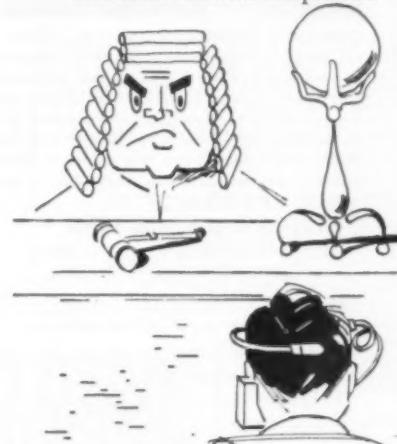
According to West Brient, sales manager of Sutton's commercial products division, the Vornado central station air conditioning system has been developed to a point where it "literally falls into the plug-in category". Now, he points out, the company is launch-

ing a program designed to establish the neighborhood appliance store as the logical place to buy central system air conditioning.

ARIZONA FIRM NAMED BY PRITCHARD

Cone and Wallace Co., Phoenix, has been appointed sales representative for the state of Arizona by J. F. Pritchard & Co. of California, a division of the Kansas City, Mo. manufacturer of cooling towers.

number 6 in a series of ads to help you better understand the servicing of Tecumseh hermetic compressors



YOU decide whether I am to be a good compressor

The life of the compressor you are about to install is in your hands. It comes to you from your wholesaler, properly identified with a nameplate and engineered to do a particular job. When you have completely analyzed the job for which it is intended, and are sure you have the *right* compressor, take your time in applying it to the job. Make certain the compressor is just as clean and free of dirt and moisture after you have finished, as it was prior to installation. Elementary as this may seem, how well you do your job, decides how well the compressor performs.

When called upon to service a compressor in the field, investigate every possible cause for failure. The service man should be constantly aware of the many variables that have the same effect on the compressor's performance. Only after a thorough investigation is it possible to determine the cause of a faulty operation. To jump to a hasty conclusion, is to invite an incorrect analysis and costly service call-backs.

Do yourself and your customer a favor. Protect your Tecumseh service warranty by avoiding the major reasons for compressor failure. It may take a little longer, but remember, a happy customer is your best salesman.

LAU BLOWER ACQUIRES CALIFORNIA PLANT

Lau Blower Co., Dayton, Ohio, has purchased the plant of Electro-thermic Corp. in Azusa, Calif., and has converted it to the production of Lau products including both blowers and household electric fans.

The new plant has 11,000 sq. ft. of floor space, of which approximately 2,000 sq. ft. is office space. This plant is to be expanded five times the present floor space for a total of 55,000 sq. ft.

HERMAN HERMETIC says

THE PRECAUTIONS YOU TAKE KEEP ME OUT OF TROUBLE



TECUMSEH PRODUCTS
TECUMSEH, MICH.
MARION, OHIO
EXPORT DEPT.:

P. O. Box 2280, 24530 Michigan Ave., W. Dearborn, Mich.

World's Largest
Producer of
Compressors for the
Refrigeration Industry

Circle No. 80 on Reader Service Card

WORTHINGTON LOOKS TO BIG '56 HOME MARKET

"We believe that 1956 will be a good air conditioning year and that the central residential air conditioning market will come into its own," Matt Lawler, vice president of Worthington Corp., told a recent meeting of 150 dealer personnel from northeastern and middle Atlantic states.

Contributing to this outlook, Lawler said, are:

An all-time high in employment, 1.7 million higher than at this time last year.

Increased purchasing power by industrial workers, whose pay checks will buy about 6% more goods and service than they would a year ago.

An all-time high of 45 billion in corporate earnings; the government forecast was below 40 billion.

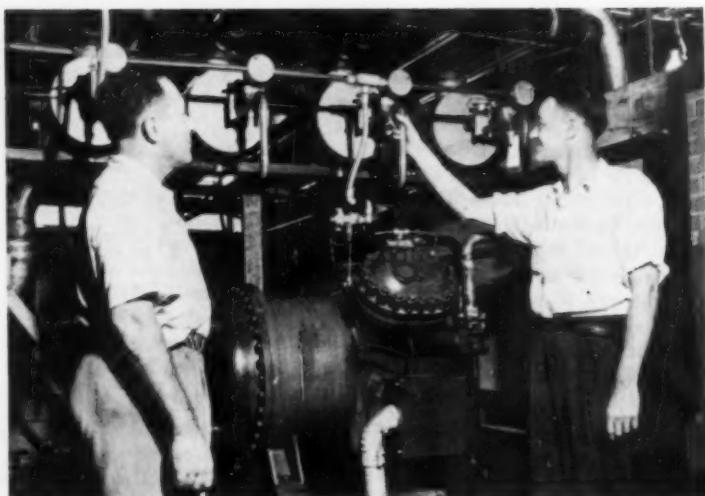
An increase in dollar volume of new home construction. Fewer, but more expensive homes will be built, with more opportunity to sell air conditioning. Greater suburban development has increased construction of new shopping centers, another good market for air conditioning.

Both industrial and commercial building should mount, and an expansion of government construction, plus increased activity in the air conditioning of existing federal government structures through General Services Administration.

Worthington sales company-wide are up 24% for the year's first eight months, Lawler said, while sales of the refrigeration and air conditioning division are up 30%. Commercial package sales are up 18%, and sales of residential units are up 54%. Central station equipment sales are 25% over 1954.

Lawler said that Worthington has begun a sales recruiting and training program which will almost double the direct sales force it has in the field at present. Part of this force will be made up of merchandising men, whose duties will be to serve wholesaler and dealer organizations. Sales engineers will be added to augment sales efforts on engineered products.

"Our chips are down on the central system residential market," Lawler said, "along with air conditioning and refrigeration for commercial and industrial use.



COMPACT INSTALLATION is this 120-ton air conditioning system at the new Medi-Cal Bldg. in Springfield, Mass. Four 30-ton Heat-X chillers, two 60-ton Westinghouse compressors, and two 60-ton Heat-X heat exchangers are crammed into only 64 sq.ft. of floor space. To handle the cooling job this equipment delivers water at 44 F to 240 Bush year-round air conditioning units installed in rooms throughout the building. Four Bush air handling units provide for interior zone conditioning of waiting rooms, corridors, and similar areas. Installation was made by Simons Burner & Petroleum Co. of Springfield.

"NEW APPROACH" IN CARRIER PACKAGE LINE

The first packaged air conditioner designed expressly for low-cost central duct system air conditioning of stores, suites of offices and other large areas has been introduced by Carrier Corp.

Developed specifically to meet important recent trends in packaged installations, the new self-contained Weathermaker eliminates the dealer "tailoring" of units formerly required on jobs using ductwork. About 70% of packaged equipment today is installed with duct systems, according to John M. Bickel, vice president of Carrier's Unitary Equipment Div., who presided at the introduction.

The new models are said to offer greater versatility in supply and return duct connections, reduce the amount of space required, and permit more freedom in location, whether installed singly or in a multiple unit system.

Wiring connections are simplified, particularly in those cases where cooling towers or remote thermostats are added. The new unit requires less refrigerant and features a multi-bank cooling coil design which improves efficiency and prevents re-evaporation of condensed moisture.

It is also the industry's first self-

contained air conditioner with no return air grilles or openings to mar its solid front panel, Bickel said. For in-the-space installations, the new packaged unit offers a matching plenum and base accessory.

The new Weathermaker series employs water-cooled refrigeration and will be manufactured in sizes of 2-, 3- and 5-hp. Installations requiring greater water-cooled capacity can be handled by multiple units.

The unit provides year-round filtered air circulation. All-season conditioning is obtained by a matched heating coil using any source of steam or hot water. The coil heats the same area the unit cools and may be added inside the cabinet without need for additional modification.

JARROW GASKETS USED IN NEW ATOMIC SUB

Jarrow gaskets have gone to sea in the newest U. S. nuclear-powered submarine, "Seawolf", launched recently in Groton, Conn. Jarrow Products, Inc., announces that it has received a letter from Electric Boat Div. of General Dynamics Corp., builder of the submarine, in recognition of the use of Jarrow sponge rubber door gaskets in the sub's construction.

WOLVERINE MILL DEPOT GETS LARGER QUARTERS

The Long Island mill depot of Wolverine Tube, Div. of Calumet & Hecla, Inc., has been moved to newer and more spacious quarters. The depot stocks refrigeration and water tube and pipe, along with other Wolverine products. New location will be at 42-02 Eleventh St., Long Island City, N.Y.

NAMED BY TENNEY

Lee Mark Associates, Kansas City, Mo., have been appointed by Tenney Engineering, Inc., to handle sales of environmental test equipment in the states of Kansas and Missouri.

C. S. LEOPOLD HONORED

Charles S. Leopold, Philadelphia consulting engineer, has been awarded the Frank P. Brown medal by Franklin Institute. Leopold was cited for his outstanding contribution to air conditioning in the fields of application, development and research.

Calendar of Industry Conventions

Oct. 8-15	International Dairy Show	Chicago, Ill.
Oct. 17-19	American Gas Association	Los Angeles, Calif.
Oct. 24-28	Dairy Industries Supply Assn.	St. Louis, Mo.
Oct. 24-26	Intl. Assn. of Ice Cream Mfrs.	St. Louis, Mo.
Oct. 26-28	Milk Industry Foundation	St. Louis, Mo.
Nov. 7-11	Natl. Assn. Practical Ref. Engrs.	Los Angeles, Calif.
Nov. 8-11	Natl. Assn. Retail Ice Cream Mfrs.	Milwaukee, Wis.
Nov. 9-11	Institute of Boiler & Radiator Mfrs.	Absecon, N. J.
Nov. 25-29	Refrigeration Service Engineers Society	Atlantic City, N. J.
Nov. 26-28	Air Conditioning & Refrigeration Wholesalers	Atlantic City, N. J.
Nov. 26-28	Refrigeration & Air Conditioning Contractors Association	Clardige Hotel
Nov. 27	Air Conditioning & Refrigeration Institute (Directors)	Atlantic City, N. J.
Nov. 27-29	National Commercial Refrigerator Sales Association	Ambassador Hotel
Nov. 28-Dec. 1	9th Exposition of Air Conditioning and Refrigeration Industry	Atlantic City, N. J.
Nov. 28-Dec. 1	Natl. Warm Air Heating & Air Conditioning Assn.	Auditorium
Dec. 1-3	American Society of Refrigerating Engineers	New York City
Jan. 22-26	Natl. Assn. of Home Builders (Meetings and Builders' Show)	Hotel Statler
Jan. 23-25	American Society of Heating & Air Conditioning Engineers	Atlantic City, N. J.
		Traymore Hotel
		Chicago, Ill.
		Conrad Hilton Hotel
		Cincinnati, Ohio

MERCOID® PRESSURE CONTROLS FOR OUTDOOR SERVICE



Weather Proof
Drip Tight
Semi-dust Tight
Sleet Proof
Splash Proof
Moisture Resistant
Rain Tight
Water Tight

Equipped with
Sealed Mercury
Contacts

External Adjustments
Visible Calibrated Dial

AVAILABLE IN 17 PRESSURE RANGES FROM
0-30" VAC. TO 300-2500 PSI.

WITH THE SENSITIVITY YOUR APPLICATION REQUIRES

Mercoid weather resistant controls are also available
for temperature and liquid level applications.

Write for Bulletin 14PW

THE MERCOID CORPORATION
4201 BELMONT AVE., CHICAGO 41, ILLINOIS, U.S.A.

Circle No. 70 on Reader Service Card
& AIR CONDITIONING • NOVEMBER, 1955

Pinnacle extends a most cordial welcome to you to visit **BOOTH 241** at the **ARI SHOW Nov. 28-29-30, Dec. 1**
See...the completely New



PINNACLE Triple-Duty self-contained SELF-SERVICE CASE!

PINNACLE Two-Temperature self-contained REACH-IN REFRIGERATOR!

PINNACLE self-contained WALL-TYPE BEVERAGE CASE!

PINNACLE 6-foot WALL-TYPE BEVERAGE CASE!

★ You'll learn the facts about "PINNACLE" . . . and you'll see a glowing future . . . with extra sales . . . prestige . . . profits FOR YOU!

Pinnacle
EQUIPMENT CORPORATION
FLEETWOOD, PENNSYLVANIA
EXPORT DEPT.—39 Broadway, New York

Circle No. 71 on Reader Service Card

Circle No. 82 on Reader Service Card



**The Serviceman's
Best Friend**

Used Across America

Excellent for Painting or Touching Up:
Air Conditioning Equip. Fin Pipes
Dust Work Grilles
Cabinets
Piping and Cocks
And 101 other uses

For better work and profit! No mixing, no clean-up, no compressor or hose needed. Just shake the can and paint. All cans furnished with guaranteed non-clogging spray valve. Complete your jobs the modern way. Ask your jobber for Sprayon today!

Attention Representatives! Some select territories still open. Write for money making details today!

Now at our New Modern Plant and Offices

**CHAMPION BRONZE POWDER
& PAINT CO., Inc.**

C2101-21 N. Elston Ave., Chicago 14, Ill.

COLORS: Chrome, Aluminum
Gloss White, Gloss Black
Meadow Green, Bright Red
Medium Gray, Royal Blue
Ivory, Bright Gold, Copper-
plate, Yellow, Clear Plastic
Black, White, Aluminum
Lacquer (Oil and Waterproof)

**WHAT'S
NEW
FOR '56**

**SEE
FOGEL**

**BOOTH
249**
ALL INDUSTRY SHOW
ATLANTIC CITY

- NEW AND EXCLUSIVE DOUBLE DECK FREEZER
- COMPLETELY REDESIGNED ATTRACTIVE
REACH-INS
- THE INDUSTRY-ACCEPTED FOGEL VEGMART
- ANGLE VISION FREEZER - ORIGINATED
BY FOGEL
- PLUS MANY OTHER "FOGEL FIRSTS"

FOGEL REFRIGERATOR CO.
Pioneers in Dependable Commercial
Refrigeration Since 1899
5400 EADOM STREET, PHILADELPHIA 37, PA.

Circle No. 83 on Reader Service Card

**USEFUL
BULLETINS • BOOKLETS • CATALOGS**

CATALOG DIGEST, describing 90 industrial rubber products is being made available by Thermoid Co. The 8-page, two-color brochure provides specifications and descriptions of 68 different kinds of rubber hose, several of which are new additions to the company's line. Data is also given on nine types of conveyor belts, seven types of flat power transmission belting, multiple and fractional hp V-belts, chute lining, rubber sheet packing and industrial friction materials. 23 cut-away photographs show hose, coupling and belt construction.

Circle No. 131 on Reader Service Card

ROTARY MACHINES, rolls and accessories are described in a 24-page, illustrated bulletin (75-B) issued by Niagara Machine & Tool Works. Covering the company's complete line, the three-color book shows various types of units available and lists complete specifications and performance characteristics. An illustrated selection chart showing various job operations, is included to simplify selection of machines and rolls.

Circle No. 132 on Reader Service Card

DURAFACE FOAMGLAS, a new material which combines insulation and integral finish in a single block is illustrated and described in a four-page folder of Pittsburgh Corning Corp. The folder describes the manufacturing process, lists physical properties and details sizes available of the material which is said to make possible the construction of an insulated and finished wall in one operation.

Circle No. 133 on Reader Service Card

"NEW AUTOMATIC GREASE MONKEY" is the title of a two-color bulletin of Reliance Electric & Engineering Co., which describes their "Metermatic" pre-lubricated bearing. The publication (Bulletin A-2406) diagrams the new bearing which features an exclusive metering plate that automatically regulates grease flow to the bearing and provides relief against over-greasing.

Circle No. 134 on Reader Service Card

STEEL SHELVING is described and complete descriptions and specifications are provided in a new 48-page illustrated catalog (FF-188) now available from Remington Rand Div., Sperry Rand Corp. Details are given for both open and close bin type shelving racks, shelves, shelving sections, box inserts, ladders and steel counters in a wide range of sizes. Photographs of installations, covering a variety of applications are included in the completely indexed catalog.

Circle No. 135 on Reader Service Card

ICE SKATING RINKS, their construction and maintenance is the subject of an illustrated, 32-page special report published by A. M. Byers Co. The new brochure utilizes more than 40 photographs, diagrams, charts and graphs in discussions of corrosion and corrosion control, types of rink construction, comparative service record data, case history digest of installations in varied sections of the country, and recommended maintenance procedures. Brine tables and a listing of other technical bulletins published by the company are also included.

Circle No. 136 on Reader Service Card

(More Useful Literature on page 140)

NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

When your business depends on Cold you can depend on Kelvinator!



AIR COOLED CONDENSING UNIT
Model OA-75 3/4 H.P.



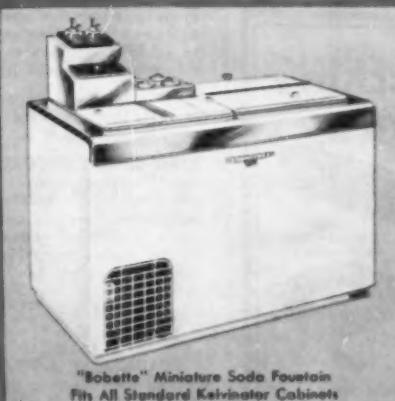
HERMETIC COMPRESSOR
Model DK4S2C 1/2 H.P. Capacitor Start



HERMETIC CONDENSING UNIT
Model K4S2CR 1/2 H.P. Capacitor Start



Hot 'n Cold Water Cooler
(Bubbler-type—Model No. PE-10-HC)



"Bobette" Miniature Soda Fountain
Fits All Standard Kelvinator Cabinets



Low Price All-Purpose Cooler
Model BC-180 sliding or lift lids

Come see us at **SPACE 411-412 at the**
ALL INDUSTRIES SHOW

Atlantic City,
Nov. 28 through Dec. 1

There's a dependable, guaranteed Kelvinator for almost every purpose—Hermetic Condensing Units; Hermetic Compressors; Air, Water or Air and Water Cooled Con-

densing Units; Truck Units; Water Coolers; Beverage Coolers; Bottle Beverage Vendors; Ice Cream Cabinets; Frozen Food and Ice Cream Merchandisers.

Kelvinator
Division of American Motors Corporation, Detroit 32, Michigan
SPECIALISTS IN REFRIGERATION SINCE 1914!

& AIR CONDITIONING • NOVEMBER, 1955

Circle No. 84 on Reader Service Card

American Motors Means



More for Americans

Circle No. 85 on Reader Service Card

Here is a new and convenient way to keep "John Crane" "Plastic Lead Seal on hand for water, steam, gas, refrigerant and petroleum service.

Just unscrew the permanent type applicator top, scrape the flat shank along the rim of the can to remove any excess, then use the handy brush to work the compound thoroughly into the threads. When finished, replace the cap and store it away in one neat can. There's no fuss, no cleaning, no mess . . . and no waste—since the can-length applicator wipes the bottom clean of contents.

PLS seals permanently, yet never hardens, permitting connections to be easily broken after years of service. PLS withstands pressures to 6000 psi., temperatures to 500°F . . . is approved by Underwriters' and Butane-Propane Institute of Louisiana.

Send for trial sample today. Crane Packing Co., 1843 Belle Plaine Avenue, Chicago 13, Ill. In Canada: Crane Packing Co., Ltd., 617 Parkdale Ave., N., Hamilton, Ont.

CRANE PACKING COMPANY
OFFICES IN ALL PRINCIPAL CITIES

EDWARDS ENGINEERING Presents a NEW WATER-SAVING CONDENSER

with these advantages:

- 35% WATER REDUCTION
- 30% COST REDUCTION
- Refrigerant Charge Reduced
- Shipping Weight Reduced
- Cooling Tower Size Reduced
- Capillary Performance Stabilized
- Models from 1 to 7½ Tons Available

Numerous advantages of this new condenser make it a must for all manufacturers of unitary air conditioning and refrigeration equipment. Applying the highly efficient counter-flow principle of heat transfer, Edwards Engineering Corp. has designed a compact tube-in-tube condenser outstanding in its performance, yet markedly less expensive than conventional condensers.

Reduction of water consumption is achieved by desuperheating of gas by water after condensation and sub-cooling. Use of coldest water for subcooling results in improved equipment performance. Tube-in-tube design stabilizes capillary performance over varied range of operating conditions.

Use of inexpensive outer tubes reduces cost, improves availability and reduces shipping weights by 4 to 5 lbs. per ton.

CALL TELMUNE 5-2808 OR WRITE
EDWARDS ENGINEERING CORP.
161 ALEXANDER AVENUE
POMPTON PLAINS, NEW JERSEY



Circle No. 86 on Reader Service Card

USEFUL LITERATURE . . .

Continued from page 138

RUBBER, PLASTICS BUYING GUIDE is a new 16-page, two color brochure published by General Tire & Rubber Co. Designed to help both technical and non-technical personnel, the new book covers the ABC's of molded and extruded rubber and extruded plastics. Contents include much helpful information—specifications, terms, definitions, performance characteristics, tolerances, and tables of properties available in the many types of common rubber and plastics compounds.

Circle No. 137 on Reader Service Card

TEMPERATURE AND HUMIDITY indicators as well as recording and control devices are pictured and described in a 4-page folder and three catalog sheets issued by Fries Instrument Div., Bendix Aviation Corp. The 2-color literature provides product design and construction details, operation characteristics, ordering information, and lists various applications.

Circle No. 138 on Reader Service Card

CHARTS for recording thermometers, pressure, vacuum and compound recording gauges are illustrated and pertinent information is given in a 6-page folder issued by Instrument & Gauge Div., Electric Auto-Lite Co. Folder contains illustrations of 62 different charts and provides descriptions of each. Range and mechanical or electric chart drive details are also included.

Circle No. 139 on Reader Service Card

MEAT PROCESSING equipment and supplies are described in comprehensive detail in a new 88-page catalog published by Koch Supplies, Inc. The new catalog (No. 80) provides a wealth of useful information, specifications, prices, shipping weights, and contains over 500 illustrations. Many new items are listed as well as modifications and changes on old products. A handy cross-reference index is also included.

Circle No. 140 on Reader Service Card

STRIP-CHART RECORDERS for pressure, liquid level, temperature, flow, and mechanical motion are described in a 12-page, two-color bulletin released by Bristol Co. The booklet contains installation drawings showing methods of applying the instruments to different variables, as well as photographs illustrating various models and their features. Use of the recorder as a receiver for remotely generated signals is also described.

Circle No. 141 on Reader Service Card

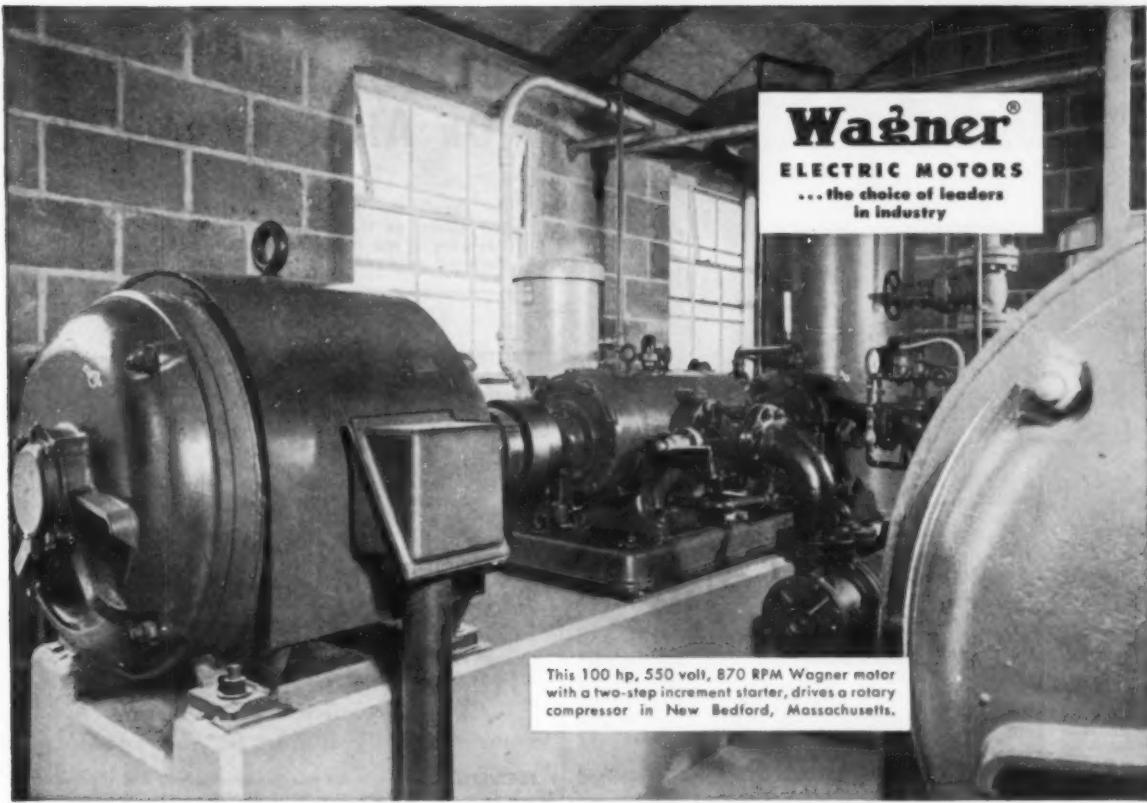
ELECTRICALLY ACTIVATED refrigerator door units are described and complete specification and application information is given in a new 12-page catalog issued by Electric Power Door Co., Inc. Designated catalog 2000, the literature is illustrated with actual installation photographs of "Electric Doorman" units and includes blueprints, erection diagrams, selection tables, construction features, and discusses necessary hardware and recommended control systems.

Circle No. 142 on Reader Service Card

A 74-PAGE "TEX-BOOK" containing multi-color tables for quick and easy selection of constant speed "Texrope" V-belt drives has been released by Allis-Chalmers Mfg. Co. In addition to selection tables, the handbook (20P40) offers valuable information on design features, basic drive principles and technical data on sheaves. Also included are helpful hints for economical, safe and dependable operation of V-belt drives.

Circle No. 143 on Reader Service Card

(See page 142 for Air Conditioning Literature)



This 100 hp, 550 volt, 870 RPM Wagner motor with a two-step increment starter, drives a rotary compressor in New Bedford, Massachusetts.

Start large polyphase motors with minimum line voltage disturbance USE THE **Wagner** INCREMENT MOTOR AND STARTER COMBINATION

Here's a modern, economical, highly efficient way to start large polyphase motors—the Wagner Increment Motor and Starter "Package."

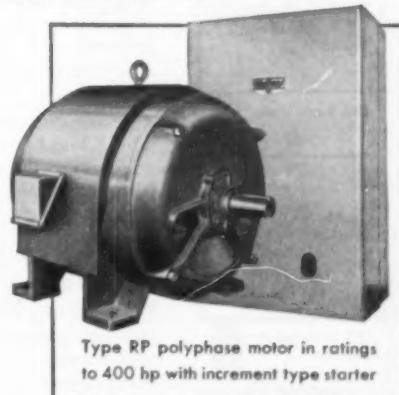
By reducing current drawn from the line on each point of the starter, the combination limits the inrush of motor current to values that are acceptable for the distribution systems of most power companies.

Voltage disturbances on the line are reduced because current taken from the line is not broken during the starting period—as it is when auto-

transformers or compensator type starters are used.

Wagner two-step increment motor and starter combinations are suitable for most applications. For installations where unusually low inrush of starting current is desired, Wagner can furnish three-step and four-step increment starters.

Your nearby Wagner engineer will help you select the increment motor and starter combination that meets *your* requirement. Call the nearest of our 32 branch offices, or write us.



Type RP polyphase motor in ratings to 400 hp with increment type starter



Wagner Electric Corporation

6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

See our exhibit at the 9th Exposition
Air-Conditioning and Refrigeration Industry
Atlantic City — Nov. 28 - Dec. 1 — Booth No. 237

M85-16

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES • AUTOMOTIVE BRAKE SYSTEMS-AIR AND HYDRAULIC

Circle No. 87 on Reader Service Card

& AIR CONDITIONING • NOVEMBER, 1955

New! Really Compact!

drayer-hanson SPOTAIRE-LRC Air Conditioning



264 Units

... already set for new Lady Luck Hotel, Las Vegas, rendering courtesy Architect Houser Bassett



LRC Basic Unit



LRC Concealed Cabinet



Request catalog L.P. 5.220

drayer-hanson
INCORPORATED

3301 Medford Street • Los Angeles 63, California
(Subsidiary of National - U.S. Radiator Corporation)

Circle No. 88 on Reader Service Card

USEFUL LITERATURE On Air Conditioning

To obtain the information described below, simply circle on the postcard in this issue the key numbers of the items you wish to receive. We will forward your requests to the companies concerned.

PROTECTION FROM SMOG is the subject of a new booklet published by Connor Engineering Corp. The illustrated booklet describes what smog is, what has been learned about it and recommends a well engineered air distribution system, adequate removal of coarse particles and fine aerosol mists, and activated carbon filtration of intake air to safeguard occupants of buildings.

Circle No. 151 on Reader Service Card

AIR CONDITIONING SYSTEMS for multi-story buildings is the subject of a 12-page booklet available from Worthington Corp. Text reviews various types of air circulation systems employed today, their advantages, disadvantages and method of operation. Line drawings, cut-away views, diagrams and photos are incorporated in the booklet and graphically explain layout and operation of each system.

Circle No. 152 on Reader Service Card

FLEXIBILITY of electronic temperature controls and their use in a wide range of commercial heating and air conditioning installations is explained in a new booklet by Minneapolis-Honeywell Regulator Co. Four basic features that give electronic control its flexibility are listed and a variety of application ideas are described and illustrated.

Circle No. 153 on Reader Service Card

VIBRATION CONTROL, through the use of "Flexon Vibro-Sorbers", is the topic of a new two-color technical data sheet being distributed by Flexonics Corp. Contents include complete specifications, product features, typical installation photographs, classification of motions and installation instructions.

Circle No. 154 on Reader Service Card

IMPROVED LIGHTWEIGHT HOSE for air conditioning, ventilating, and other use is the topic of a new bulletin released by Flexoast Co. The illustrated literature describes a new vinyl wear-strip which has been added to the company's various types of hose. Dimensions, prices, and applications are also included.

Circle No. 155 on Reader Service Card

FEATURES AND SPECIFICATIONS of a recently developed built-in wall air conditioner are pictured and described in a 4-page folder published by Amic Mfg. Corp. The two-color folder discusses operation of unit, application ideas, and contains complete dimensional data.

Circle No. 156 on Reader Service Card

DESIGN AND PERFORMANCE characteristics of "Diaflow" unit conditioners are described and illustrated in a new 4-page folder (No. 8227) of American Blower Corp. Illustrations show typical installations of unit in free standing, recessed, floor and ceiling mounting arrangements. Internal operation of unit is diagrammed and complete specifications and nominal capacities are given.

Circle No. 157 on Reader Service Card

EXHAUST FANS for industrial heavy-duty applications are described and illustrated in a 4-page catalog (Bulletin 6514) of American Blower Corp. The two-color folder outlines construction features of the new Model K Ventura fans and gives complete performance data for each of the 45 different units available.

Circle No. 158 on Reader Service Card

BOILER SCALE and corrosion problems are discussed and the "Borgana" water treatment for eliminating scale is covered in a new four-page, two color folder (B91252-S) of Borgana Products Co. The bulletin describes various types of boiler problems, gives product performance characteristics, and contains a diagram which shows how the water treatment works on entire air conditioning and refrigeration systems.

Circle No. 159 on Reader Service Card

NEW TYPE OF SUN SCREEN designed to protect windows against build-up of excessive solar heat and glare is described in a 4-page folder being distributed by Reflectal Corp. Illustrated with photographs and drawings, the brochure outlines construction characteristics and product features.

Circle No. 160 on Reader Service Card

VERTICAL TURBINE PUMPS for industrial and municipal primary water supply are described in a new eight-page folder (Bulletin 100) published by Layne & Bowler Pump Co. The folder includes sectional illustrations with enlarged views of special features and detailed drawings of pumping and distribution systems. A condensed selection table is a valuable guide to horsepower and head-capacity ratings of the "Verti-Line" pumps.

Circle No. 161 on Reader Service Card

(Turn to page 138 for more Useful Literature)

Use *Stic-Klip*® for Insulation Installation

ON AIR CONDITIONING AND VENTILATING SYSTEMS
FOR COLD STORAGE PLANTS, BUILDINGS AND SHIPS.



- 1 TYPE B with Locking Plate
- 2 SPRING TUBING CLIP $\frac{1}{4}$ " and $\frac{3}{8}$ "
- 3 TYPE B
- 4 TYPE A
- 5 TYPE S ADHESIVE
- 6 HOLDING PLATE used with Type A and B
- 7 TYPE N with Speed Washer
- 8 INSERT BASE Securing Signs, Wall Cabinets, etc.

Stic-Klips permanently bind almost any insulating material to masonry, wood, metal — flat, corrugated, curved, unusual-shaped. This modern method eliminates drilling, puncturing metal — saves time and money.

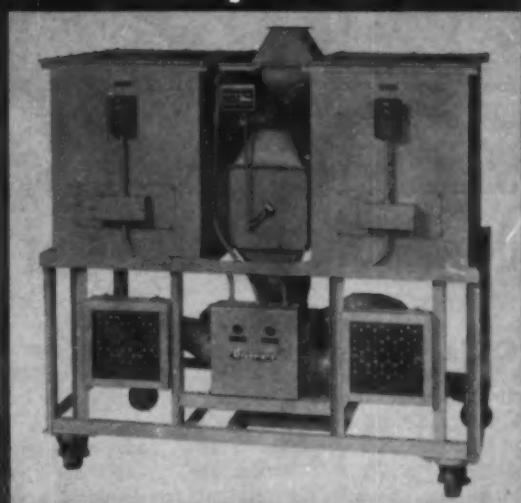
For illustrated booklet on any of these applications,
write Dept.

Stic-Klip MANUFACTURING CO.

EST. 1940 Regent St., Cambridge 40, Mass.

Circle No. 90 on Reader Service Card
& AIR CONDITIONING • NOVEMBER, 1955

presenting...
the **Dryomatic** "T-150"



air conditioning
engineers! dealers! contractors!

you are cordially
invited to see
America's newest,
most efficient
industrial-commercial
dehumidifier

The "T-150" is the latest addition to the DRYOMATIC line of industrial and commercial air dryers. It is designed to maintain humidities as low as 10% in spaces up to 60,000 cubic feet over a wide range of temperatures and can be installed in conjunction with existing cooling equipment. Other DRYOMATIC models are available to meet your specific requirements. Write for additional information or . . .

||||| VISIT US AT BOOTH 135

I am interested in learning more
about DRYOMATIC dehumidifying equipment . . .

name _____ title _____

company _____

street _____

city _____ zone _____ state _____

Dryomatic corporation
ALEXANDRIA • VIRGINIA • KING 9-3060

Circle No. 89 on Reader Service Card

COMMERCIAL REFRIGERATOR SALES NEWS

Sales of Frozen Food Equipment Seen Due for Steady Rise in Next Few Years

SALES of frozen food merchandising and storage equipment should remain at a high level for many years to come, on the basis of figures reported recently in the *Industrial Bulletin* of Arthur D. Little, Inc. In fact, the sales of such equipment definitely should increase in the years ahead in direct proportion to the increase in sales predicted for frozen foods themselves.

Here are some excerpts from this publication's detailed report:

Frozen food currently is the best item for a retail food store to sell. Dollar sales per square foot of store space and gross profit margins are considerably higher than for any other class of product. It is expected that by 1960 frozen foods will account for 10% of chain store income, with total volume about double the present level.

Biggest expansion in the frozen food field has been in the development of distribution channels, particularly storage facilities to hold goods at zero degrees. There are now over 225 million cubic feet of such low-temperature warehouse capacity, capable of holding two years' frozen food production at the present rate of output.

Departing from the frozen food specialty store of the immediate postwar period, the industry has concentrated on the traditional outlet—the grocery store. Some 250,000 retail stores now have frozen food departments, and 75% of the industry's capacity is sold through supermarkets.

Frozen food packaging developments have contributed substantially to supermarket merchandising methods, and have spearheaded the trend toward unit packaging of fresh meat and vegetables.

With over 1300 packers offering more than 700 items, competition among frozen foods is intense. As the battle for limited retail display space continues, many small firms are losing ground, while dominant brands are emerging to control the market and command a premium price. The substantial investment required for refrigerated storage and display cabinets has proved well worth while, yet the industry estimates it may lose some \$300 million in sales because of lack of cabinet space in retail outlets.

Packers are encouraging retailers to expand and improve refrigerated facilities. Too often a retailer may store frozen food in an open back room for several hours before putting it in the display freezer. Even use of a meat cooler (36 to 42 F.) for temporary holding, a fairly common practice,

results in thawing and loss of flavor. At least one state has passed legislation to regulate handling of frozen food. Informed distributors are in favor of the program, and are taking steps to conform with the proposed regulations.

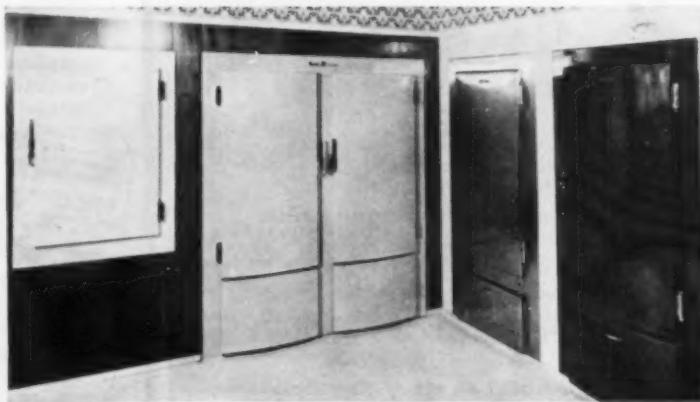
The hint that irradiated foods may come on the market before long and completely wipe out freezing seems to be without strong backing. While considerable progress is being made in sterilization of food by this technique, the problems to be solved are sufficiently complex to require several years' work. Meanwhile, several new developments, including the coating of frozen meats with wax for easier distribution and lower handling costs, are expected to contribute heavily to continued growth for frozen foods.

COMMERCIAL SALES UP FOR FIRST HALF-YEAR

Members of National Commercial Refrigerator Sales Association for the first six months of 1955 are substantially higher than those of the same period of last year, according to reports made to NCRSA headquarters.

Total dollar sales for the first six months were 15.4% higher than those during the first half of 1954, reports to NCRA show, and dollar net profit for the same period was 20.16% higher than for

COLOR INVades THE BUILT-IN FIELD



COLORFUL "Bilt-In" refrigerators and freezers manufactured by Sub-Zero Freezer Co., come in a variety of sizes and styles for high and low temperature requirements in both self-contained and remote models. Exterior finish is available in white, mist blue, pastel yellow, coral pink, and jet black as well as coppertone and stainless steel. All models have either right or left swing doors. Units shown here were displayed during the summer furniture market in Chicago.

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H. P.	REFRIGERANT	LOW BACK PRESSURE	MEDIUM BACK PRESSURE	HIGH BACK PRESSURE
1/8 Fan Cooled	F12	C10	C13	C16
1/8 Static	F12	C10	C13	C16
1/6 Fan Cooled	F12	C13	C18	C20
1/6 Static	F12	C12	C17	C19
1/8 Fan Cooled	F22	C11	C12	C15
1/8 Fan Cooled	F12	C14	C18	C21
1/8 Static	F12	C13	C17	C20
1/5 Fan Cooled	F22	C12	C14	C16
1/4 Fan Cooled	F12	C17	C19	C21
1/4 Fan Cooled	F22	C14	C17	C19
1/3 Fan Cooled	F12	C18	C20	C26
1/3 Fan Cooled	F22	C17	C18	C22
1/2 Fan Cooled	F12	C29	C30	C34
1/2 Fan Cooled	F22	C23	C24	C28
3/4 Fan Cooled	F12	C30	C32	C36
Fan Cooled	F22	C25	C27	C33
1 Fan Cooled	F12			
	F22			

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- 4-Because a Bullet combination is custom made for the particular job, most companies don't install gauges. Simply install a Bullet combination — evacuate and charge — that is it.
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ADVANTAGES OF BULLET COMBINATION CAP TUBES OVER OTHER 'ONE SIZE FOR EVERY JOB'.

- 1-Can you use an expansion valve designed for So2 on a F12 system? The answer is "no" — because the orifice is different.
- 2-Can you use a 1/4 ton valve on a 1 1/2 ton system — the answer is "no" — because the orifice is different.
- 3-Can you use a valve designed for low temperature on an air conditioning system — the answer is "no" — because the orifice is different.

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146

the same period a year ago.

Dollar sales for the second quarter of 1955 were 19.11% higher than those for the same 1954 period. Members reported inventory as of June 30 this year at 4.03% higher than that of the same time last year.

For the six-month period, 80% of NCRSA members reporting showed an increase in sales over the first half of 1954, and about the same percentage did more business in the second quarter of 1955 than for the same period of 1954. Seventy per cent of these reported an increase in net profit.

OKLAHOMA LAW BANS CABINET GIVE-AWAYS

Loaning, leasing or giving away refrigeration equipment by dairies and ice cream companies is prohibited by legislation recently passed by the state of Oklahoma.

In reporting the action to national headquarters of National Commercial Refrigerator Sales As-

sociation, W. C. Bader, Oklahoma City distributor and a former NCRSA national president, says that in his opinion the overall effect of this new legislation will be beneficial to the refrigeration industry throughout the United States.

The new law gives the dairies and ice cream companies 14 months from its effective date to dispose of equipment now in use. He believes they will do this by selling it to the firms who are now using it in their stores.

According to Bader, effective use was made by farmers and milk producers of the fact that the heavy investment and expense incurred by dairies in furnishing equipment to users resulted in too much spread between the cost and selling price of dairy products. The pending FTC action against such practices by dairies and ice cream companies also had some effect on their thinking, he believes.

THREE NEW COMPANIES JOIN NCRSA RANKS

Two new associate members and one distributor member have recently joined National Commercial Refrigerator Sales Association, according to NCRSA headquarters.

The associate members are: A. J. Johnson, president, Pufer-Hubbard Refrigerator Co., Grand Haven, Mich., and J. N. Finnerty, sales manager, Proctor & Schwartz, Inc., Philadelphia. New distributor member is A. F. Murphy, president, C. P. Fabien, Ltd., Montreal, Canada.



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BREWER-TITCHENER SETS NEW SALES POLICY

A new sales policy, integrating all sales under parent company management, has been announced by Frederic A. Celler, general sales manager of Brewer-Titchener Corp.

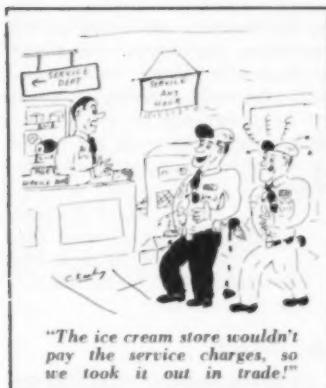
As a result, C. Q. Sherman Associates, Inc., Mt. Vernon, N.Y. will no longer be sales agent for BTC refrigeration products, including dairy, candy, and frozen food cabinets, ice cube makers and blood banks.

All refrigeration products sales and manufacturing will be handled from The Brewer-Titchener Corp.'s Plant No. 6 at New Milford, Pa. In direct charge of all BTC refrigeration sales is P. J. (Pat) Shea, recently appointed assistant sales manager for the Refrigeration Div.

J. K. NOEL, SR. DIES; VICTOR VICE CHAIRMAN

J. K. Noel, Sr., vice chairman of the board of directors and chairman of the executive committee of Victor Products Corp., died Oct. 10 following a month's illness.

Noel had served Victor in an official capacity for more than 35 years. Under his leadership the company has become an important factor in the refrigeration field. Surviving are seven children including J. K. Noel, Jr., Victor's vice president in charge of sales.



1,300,000 ROOM UNITS SOLD DURING 1955

Retail movement of room air-conditioners reached an all-time high during the 1955 selling year of about 1,300,000 units compared with about 1,000,000 units during 1954, according to figures released by the Air-Conditioning and Refrigeration Institute.

Geo. S. Jones, Jr., Managing Director of ARI, pointed out that factory and distributor inventories reported to ARI are sharply down from 512,471 units on Aug. 31, 1954, to a healthy 206,700 units on Aug. 31, 1955.

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2 to 15 HP
- Packaged Water Chillers—
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- Forced Air Convector
- Air Cooled Condensers—
3 tons and up
- Cooling Towers—3 to 60 tons

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LETTERS

Storage Conditioning Article Touches Off Valve Discussion

EDITOR:

We have read with interest in the August 1955 issue of your good publication the article by Mr. Edward Dowis on "Storage Type Air Conditioning".

We were particularly interested, for obvious reasons, in the recommendation on the thermostatically operated mixing valves called for in each of the four diagrams.

While we realize that Mr. Dowis was not attempting to fill out details of the controls, there is a possibility of contractors getting into difficulty on the application as shown by Figure 4, calling for a thermostatic three-way valve to furnish the final room control temperature by modulating the flow of chilled water for the cooling cycle, or hot water for the heating cycle, and utilizing a three-way valve to avoid a build-up of head pressure on the pump when the thermostatic valve reduces the

pump would normally enter the common connection "A". Connection "B" would be expected to be the bypass connection, and connection "C" would be the line to the coil.

All self-operated temperature regulators are so constructed that the flow through "B" will be shut off on rising temperature. Obviously, this is the action desired on cooling. The higher the temperature at the thermostatic bulb, the more flow is desired through the coil; as the temperature at the thermostat drops, flow through the coil should be reduced until ultimately shut off and balance the flow going through the bypass.

However, the reverse is necessary on heating. For this application, it is necessary that the bypass line be closed on falling temperature. Therefore, with a self-operated temperature regulator it would be necessary that connection "C" become the bypass connection and connection "B" become the connection to the coil.

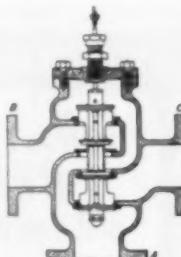
Provided the action of the valve can be reversed from heating to cooling by reversing the action of the controlling thermostat, which can be done with electric controls and with pneumatic controls, it would not be necessary to physically change the flow through the piping circuit on switching from heating to cooling.

L. S. DYSART,
Sales Manager, Controls Div.
Fulton Sylphon Div.
Robertshaw-Fulton Controls Co.

MR. DYSART:

In your comments regarding my article on "Storage Type Air Conditioning", you make some very helpful observations.

The thermostatic three-way valve controlled by room temperature, connected as shown in Fig. 4, was not assumed to be self-operating. It would require that valve action be reversed when changing from cooling to heating. This can be accomplished by either of several heating-cooling circuits, using a single thermostat or one for cooling and another for heating. Details of the temperature control system were not included in the article, the purpose of which was primarily to show the flexibility of storage systems and their adaptability to all-year conditioning. Other control equipment adaptable to summer-winter



flow through the coil. To make this control work, it would be necessary to do one of two things:

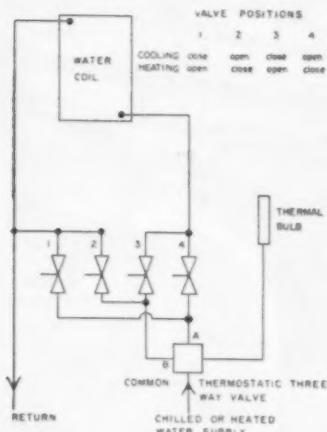
(A) It would be necessary to reverse the direction of flow through the three-way valve by means of hand switch-over valves when changing from the cooling to the heating cycle;

(B) Or, it would be necessary to reverse the action of the valve between the heating and the cooling cycle by reversing the action of the thermostat operating the valve, which can be done with some electronic or pneumatic control setup. It cannot be done with a self-operated control.

Examination of the construction of our type WB valve (shown) will readily illustrate this point. As illustrated in Figure 4 of the Dowis article, the water supply on the

systems may be used in place of the by-pass valve shown.

A self-operated valve could be used with four single seat valves connected as shown in the accom-



FOUR SINGLE SEAT VALVES CONNECTED TO REVERSE ACTION OF SELF-CONTAINED THERMOSTATIC THREE WAY VALVE WHEN CHANGING FROM COOLING TO HEATING

panying illustration. These valves alternate supply and by-pass connections when changed from the cooling to heating setting and reverse action of the valve. Temperature rise increases flow through connection A and decreases it through B. With valves set for cooling, A is the supply and B the return. Set for heating, the connections are reversed.

EDWARD DOWIS

N. O. NELSON CO. SOLD TO BELLANCA AIRCRAFT

Bellanca Aircraft Corp. has concluded the acquisition of the N. O. Nelson Co. of St. Louis, wholesalers of plumbing, heating, water works, refrigeration, air conditioning and industrial supplies, for approximately \$4,850,000.

The purchase includes 20 branches in nine states, as well as a subsidiary, the Joplin Supply Co. of Joplin, Mo.

N. O. Nelson Co. will be operated as a wholly-owned subsidiary of Bellanca. Leo J. Bachle remains as president of Nelson and no major changes in its management personnel are anticipated.

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- eliminates elbows, clamps and special fittings — saves material
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Thermaflex will cut your installation costs substantially when you use this rugged, light-weight duct to connect main line ducts with diffusers, sound boxes and other types of distributors in any air-conditioning system — high or low pressure.

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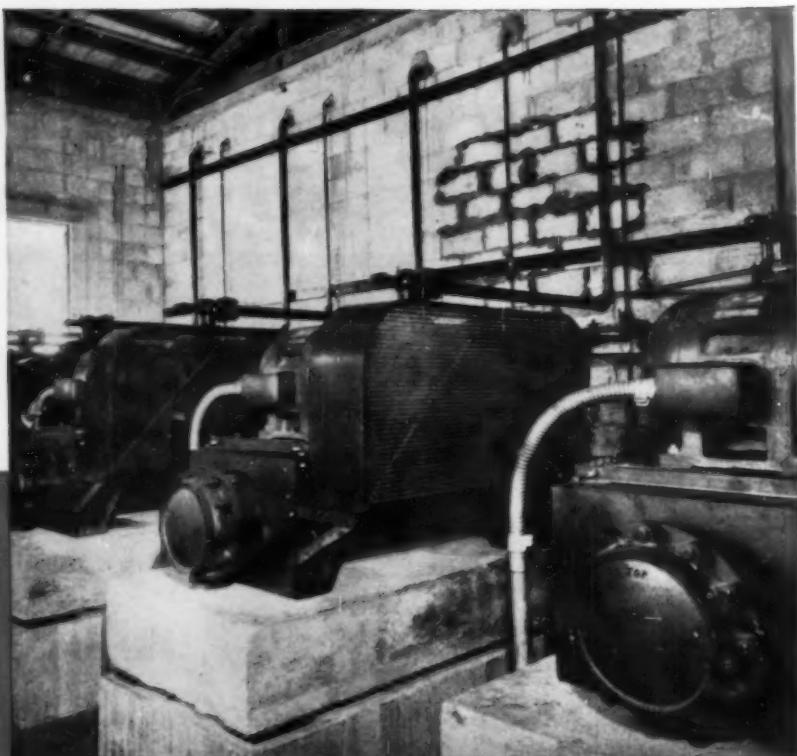
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NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

CONTRACTORS

NEWS • ACTIVITIES • PLANS

Here are Pros and Cons of 10 Most Common Methods of Conditioning Existing Buildings

A review of the principal characteristics of 10 commonly used systems of air conditioning applicable to installation in large buildings was presented by C. L. Rinquist, engineer for Trane Co., in a recent issue of the company's publication, *Weather Magic*.

The systems can be divided into three basic groups, Rinquist says: central fan systems, small duct systems and unit systems. Following is a digest of his presentation.

Central fan systems can be installed in a wide variety of arrangements to suit many different sets of conditions. Because a central fan system for an entire building is usually impractical, the installation is generally divided into smaller central systems with one or two systems per floor. Most of these systems employ a factory-

built unit which is supplied with chilled and hot water or steam from a central source.

There are several common variations of these small central fan systems, all of which employ reheat coils. It is often necessary, for positive humidity control, to lower the temperature of air below required cooling temperature in order to remove enough moisture, then reheat it to the desired temperature.

In the zone reheat system, the reheat coils are in the duct work to each zone, reheating the incoming air to maintain desired zone temperature conditions.

In the room reheat variation, reheat coils are in the duct work to each room and are thermostatically controlled for each individual office or room, so that individual control is obtainable.

The third variation is a system using what is called a multizone unit air conditioner. This unit is actually several individual zone air conditioning units in one casing, and separate cooling and heating coils in parallel are contained within the air stream for each zone.

Another small central fan system variation is often referred to as the "double-duct" system. In this system, two ducts are run to each room from the fan unit. One duct carries cool air and the other carries warm air, and each room has mixing dampers in the ducts.

In buildings with limited ceiling height or low-hanging beams, some system other than the small central fan system must be used. Two suitable and commonly-used systems for this type of building are the low pressure and high pressure induced air systems. In these systems, air is supplied from a central fan to room units containing water coils. These units are designed to use a small amount of forced air to induce additional room air.

In the low pressure or blower system, the cool air supplied by the fan induces an equal quantity of room air. As a consequence, the air ducts can be reduced in cross sectional area.

The high pressure induced air system provides primary air at about four times the pressure of the blower unit; both heating and cooling are accomplished in the

TYPE OF SYSTEM	Appx. 1st Cost /Ton Relative	Operating Cost	Occupant Inconvenience	Humidity Control	Fl. by Fl. Instaln.	Recirc. Air Bet. Rms-Zones	Individual Room Control	Use Existing Heating System	All Air Filtered	Floor Space	Ceiling Height
SMALL CENTRAL FAN AND ZONE REHEAT	\$800-900	High	Med	Yes	Yes	Yes	No	Yes	Yes	Med	High
SMALL CENTRAL FAN AND ROOM REHEAT	\$950-1000	High	Med	Yes	Yes	Yes	Yes	Yes	Yes	Med	High
SMALL CENTRAL FAN MULTIZONE	\$750-850	High	Med	No	Yes	Yes	No	Yes	Yes	Med	Med
SMALL CENTRAL FAN	\$1000-1100	High	Med	Yes	Yes	Yes	Yes	Yes	Yes	Med	High
LOW PRESSURE INDUCED AIR	\$950-1050	High	High	Yes	Yes	Yes	Yes	No	No	Med	Low
HIGH PRESSURE INDUCED AIR	\$1100-1300	Med	Med	Yes	No	No	Yes	No	No	Low	Low
HIGH PRESSURE SMALL CENTRAL DUCT	\$1000-1200	High	High	No	Yes	Yes	No	Yes	Yes	Med	Low
WALL INTAKE ROOM UNIT	\$800-900	Low	Low	No	Yes	No	Yes	No	Yes	Low	Low
CORRIDOR SUPPLY ROOM UNIT	\$900-1000	Low	Low	Yes	Yes	No	Yes	Yes	Yes	Low	Low
UNIT & DUCT SYSTEM	\$1000-1100	Low	Low	Yes	Yes	No	Yes	No	Yes	Low	Low

coil in the room unit; and the ratio of induced air to primary air is about 4 to 1 as compared to 1 to 1 in the blender unit.

This system provides individual room control, conserves floor space and does not require high ceilings. Since most induced air units are not recommended for conditioning areas more than 15 feet from their location, a separate duct system is required for interior zones.

Another system designed especially to reduce the size of the distributing ducts is the high pres-

sure central fan system. This is like a conventional central fan system, except that ducts are designed for high pressure, high velocity air distribution.

The next three systems are called unit systems because they use unit air conditioners of the fan-coil type in each office or room. Most of these units contain a fan or fans, a coil connected to the central source of chilled and hot water, a drip pan to collect condensed moisture and filters.

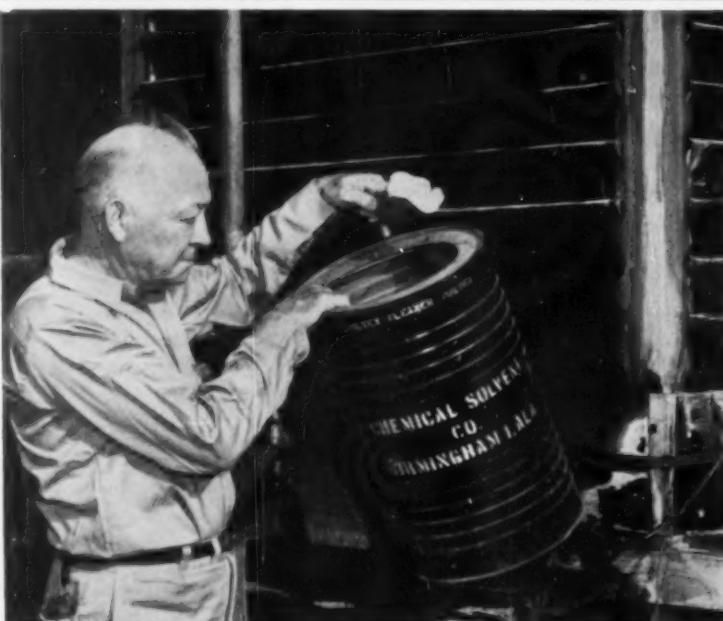
In the wall intake unit system,

the room units draw in the necessary amount of outside air through wall openings adjacent to the units. Use of this system is limited to buildings not much more than six stories in height.

Units are often furred in over room entrances instead of being mounted on the floor under windows. Conditioned ventilation air is supplied through ducts furred into the corridor. The units draw in some of the conditioned ventilation air from the corridor duct through an opening in the corridor wall, mix it with return air from the room, condition the mixture and discharge it into the room through a grille.

The unit and duct system is a deluxe system combining the advantages of the unit system and the small central fan system. In this system, floor-mounted units providing filtered, recirculated air are used year-around to control room temperature either manually or automatically. Ventilation and dehumidifying air is supplied by ducts from an interior central fan unit. Independent control of temperature, humidity and ventilation are provided.

The accompanying table gives the various characteristics of these various systems, comparing them as to approximate first cost, operating cost, inconvenience to occupants during installation, humidity control, whether floor-by-floor installation is possible, recirculation of air between rooms or zones, individual room control, use of existing heating system, amount of floor space occupied, and ceiling height required for ducts.



"Ultra Solvex reduces head pressure to normal in a few minutes while the machine is working!"

Few cooling towers, shell and tube condensers and "evaps" can operate indefinitely without being cleaned. Accumulation of scale, algae, grease, slime and dirt can cause real trouble such as poor heat transfer . . . high head pressures . . . and increased operating costs. The way to clean up such trouble is with ULTRA SOLVEX CLEANER GRAINS AND TABLETS, which can be used while the machine is working. Head pressure usually returns to normal in 15 to 45 minutes.

ULTRA SOLVEX CLEANER is SAFE—safe for the operator who uses it, safe for the equipment he uses it on. ULTRA SOLVEX aids in preserving metals. It disintegrates the scale and algae to sludge that can be harmlessly drained from the sump.

Much of the trouble encountered in the operation of water-cooling equipment can be prevented. Cooling towers and evaporative condensers, newly installed or

after being cleaned, should be given the SOLVEX MAINTENANCE treatment to stop corrosion and retard scale formation and the growth of slime and algae. The SOLVEX MAINTENANCE FORMULA is available in tablet form or in granular bulk (grains).

You can see these and other fine-quality SOLVEX products in Booth 502 at the 9th Exposition of the Air Conditioning and Refrigeration Industry in Atlantic City on Nov. 28th thru Dec. 1st.



Circle No. 101 on Reader Service Card

FRANK DEAN HEADS NEW K. C. RACCA GROUP

The local RACCA association in Kansas City has been reorganized recently with Frank Dean, Jr. as president, RACCA's national office reports.

As a result of contractor action there, a business agent of the United Association has been named for refrigeration and air conditioning only, and application has been made for certification as a separate craft.

Similar action has been taken by Cleveland RACCA.

U. A. NAMES SPECIALIST ON INDUSTRY PROBLEMS

C. J. Voss, special representative of the United Association, has been designated to handle the refrigeration and air conditioning work of that organization, directors of the national RACCA group were informed at their recent quarterly meeting in Chicago.

Voss and his assistants will specialize on refrigeration and air conditioning problems exclusively. All problems of the industry from RACCA locals will be channeled to Voss through Ray Kromer, RACCA executive vice president. All refrigeration and air conditioning problems within the unions will be channeled to RACCA through Voss by Ray Kromer.

This simplified procedure, it is believed, will save considerable time in pin-pointing the clearance of and action on problems through one key representative from each association.

MICHIGAN AND TEXAS CONTRACTORS MEET

A number of additional local refrigeration and air conditioning contractor groups in various sections of the country have held pre-organizational meetings recently, looking toward eventual affiliation with the national Refrigeration & Air Conditioning Contractors Association, reports Ray Kromer, RACCA executive vice president.

Contractors in the western Michigan territory met recently in Lansing, Kromer reports, with those present at the meeting representing most of the state's larger cities outside of the greater Detroit area.

Kromer also held meetings recently with contractor principals in San Antonio, Austin and Beaumont, Tex. At all of these meetings, the national RACCA program was explained in detail.

O. B. LUND IS NEW RACCA DIRECTOR

O. B. Lund, president of RACCA of Montana and Northern Wyoming, was elected a director of the national Refrigeration & Air Conditioning Contractors Association at the quarterly directors

meeting of the association in Chicago recently.

Lund replaces former director B. C. McCall of Chattanooga, Tenn., who has disposed of his refrigeration contracting business. He will serve as director from the sixth district until the regular election of directors at the RACCA national convention during the ARI Exposition in Atlantic City.

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EXPLAINS IMPORTANCE OF PERMITS, INSPECTIONS

Pointing out that many refrigeration and air conditioning jobs are being installed in St. Louis without permits and approval from the city's building division, Joseph P. Sentric, director of public safety, warned that contractors who don't comply with existing regulations can cause unnecessary trouble for their customers.

Sentric's remarks were aimed both at contractors and the buying public, and were intended to

stress the importance of permits and inspection for air conditioning installations. Many jobs are being done without obtaining permits and approval from the city's building division, he said.

He summarized the permits-inspection requirements as follows:

1. Air conditioning and refrigeration installations require the contractor or owner or his agent to secure a permit from the section of mechanical equipment.

2. Those installations having electrical connections require also

a permit from the electrical section of the department of public utilities.

3. Those installations having water and sewage connections require a permit from the plumbing section in the division of building and inspection.

4. Before the air conditioning installations is approved, evidence of plumbing and electrical permits must be produced.

5. No air conditioning or refrigeration plant may be put into operation until an operating cer-

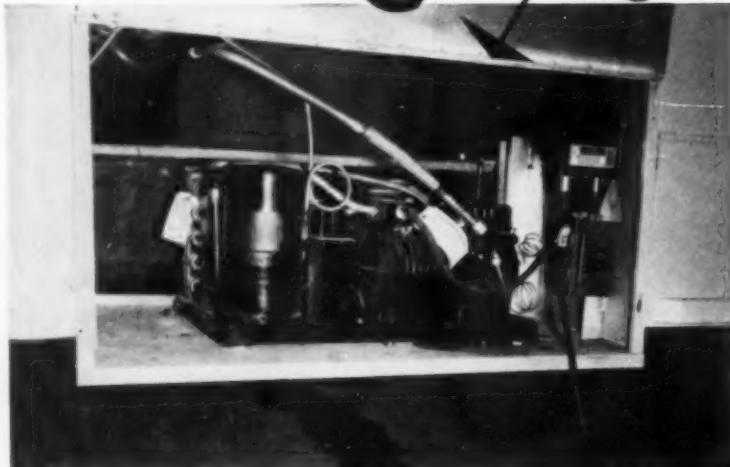
tificate has been issued by the section of mechanical equipment.

6. All refrigeration equipment over 1 ton capacity requires a permit and annual inspection.

7. Air conditioning equipment, duct work and electrical safety controls are subject to bi-annual inspections by the section of mechanical equipment.

8. Any violations of these provisions subject the installations to being sealed and thereby made useless to the owner.

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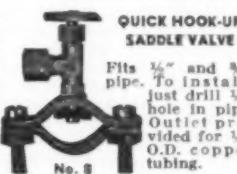


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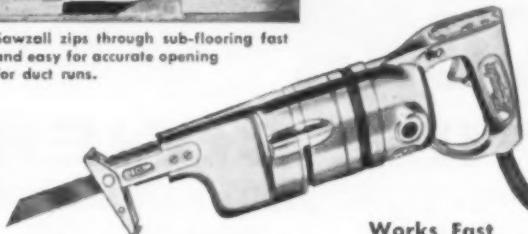


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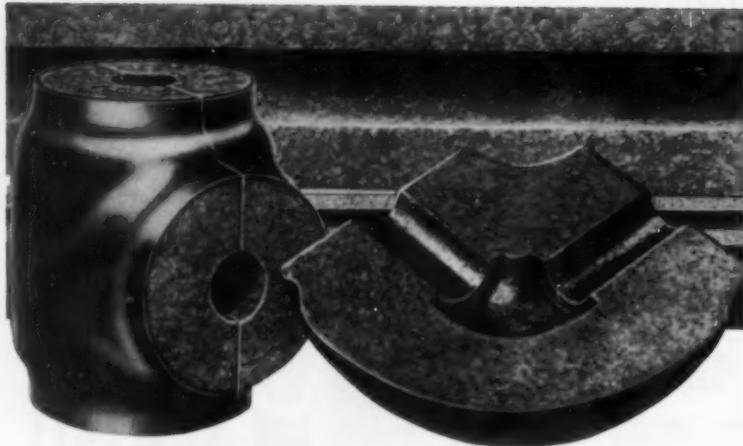
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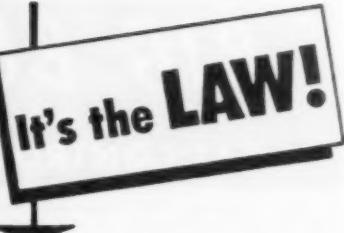
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Circle No. 107 on Reader Service Card



by Albert Woodruff Gray

Legal problems are an inherent part of operating any business enterprise. If you are beset by them, you'd better talk to your lawyer. This column, which will appear periodically in the issues of COMMERCIAL REFRIGERATION AND AIR CONDITIONING, in no way aspires to serve as legal counsel for our readers. It is prepared, however, by a man well versed in legal practices and opinions, and by presenting digests of actual court cases involving commercial refrigeration and air conditioning dealers and contractors we hope to enable our readers to sidestep some of the legal pitfalls into which they otherwise might unwittingly stumble.

—The Editors

CONTRACT MODIFICATION RULED VALID

IN a contract between an Ohio manufacturer and a Massachusetts dealer, under which 200 refrigeration units were to be delivered monthly to the dealer for one year, it was provided that the agreement, "unless cancelled before the expiration of any one year period, shall continue from year to year."

Deliveries were first made in February. At the end of July 1,024 units had been delivered under this agreement and less than half of them had been sold. In May the dealer had reduced his price and a few months later cut it to the actual cost to him. In November the manufacturer who had been holding material for the manufacturer of these units, asked the dealer for an advance of \$10,000 on account of the equipment still to be delivered.

To this the dealer replied that if the manufacturer would agree to a cancellation of the contract, should it be found impossible to dispose of the stock on hand, he would agree to make this advance and shortly afterwards forwarded a check for that amount which was accepted.

Later the dealer cancelled the agreement and sued to recover damages for a breach of warranty. In its defense the manufacturer maintained that the dealer was liable for a breach of contract in refusing to accept deliveries, that the cancellation of the agreement was without

consideration and the dealer liable for the price of the units subsequently delivered.

In the decision in favor of the dealer the Federal District Court said, "Dealer and manufacturer had the right to vary the terms of their original agreement by a later agreement provided such later agreement was supported by a consideration. It is true that a debtor incurs no legal detriment and a creditor receives no benefit when the debtor pays that which he already owes. But the dealer did not owe the manufacturer \$40,000 at the time the payment was made. The purchase price on this refrigeration equipment was not due until it was shipped. Therefore when the \$40,000 was paid it was not yet due. Payment in advance is consideration for the modification of an agreement."

Glencoe Range Co. v. Universal Major Elec. Appliances, 124 F.S. 103, Maryland.

RECOVERY OF EQUIPMENT DENIED BY COURT

A refrigeration system was furnished and installed in New Jersey under a conditional sale contract. When a foreclosure action was brought by the mortgagee of the realty the seller claimed his equipment under this contract.

In a denial of his right to the repossession of this plant the New Jersey court said, "Fixtures are regarded in law either as personal or real property depending upon the intention with which they are annexed to the realty. Material injury in detaching, no intention in attaching, is the test.

When it is considered that the plant is a part of the building and that without it the building cannot function, it may well be doubted that although it is removable without material injury to the freehold, as against the mortgagee which advanced its money in contemplation of a completed structure, it is no more removable without material injury than would be the carrying away of the front door although the unhinging of the door would be less difficult."

Future Building & Loan Ass'n. v. Mazzocchi, 152 Atl. 176, New Jersey.

SHOP NUISANCE IS ENJOINED

A shop for the repairing of refrigeration equipment, conducted near a residential district in New Jersey, carried on its operations at night and occasionally on Sunday in violation of the rights of the owner of an adjacent dwelling.

The owner of the property sued for an injunction against the activities of this shop and in granting that relief the New Jersey court said,

"Gas fumes arose and blew into the

HAND-ASPIRATED PSYCHROMETER FOR ACCURATE TEMPERATURE/HUMIDITY MEASUREMENT



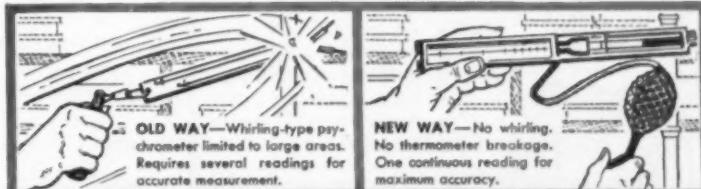
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Compact and easy to read, this Bendix-Friez* Hand-Aspirated Psychrometer provides a very simple means of obtaining quick, accurate temperature and humidity measurements. It requires no whirling or special techniques. Particularly adapted for measurements in close, confined spaces without the usual risk of thermometer breakage, it is extremely popular among air-conditioning and heating engineers.

Model HA/2 has two identical red-reading mercurial thermometers. Graduations on each thermometer are in 1° spacing from 10°F. to 110°F. One bulb is covered with a special wicking to act as a wet bulb. The unique design of the instrument permits it to be held stationary during operation and for observing decreasing wet bulb temperature. Thus the *minimum* wet bulb temperature can be read for maximum accuracy.

The Bendix-Friez HA/2 Psychrometer comes complete with built-in pocket-size plastic carrying case, water bottle, applicator, spare wicks plus a Bendix-Friez Psychrometric Slide Rule.

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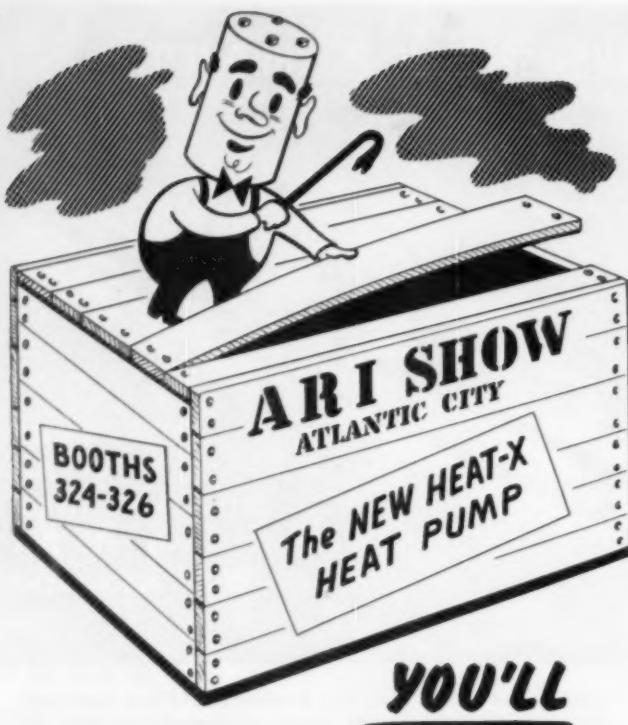


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home and the accompanying noises and the arc light frequently rendered sleep impossible and living uncomfortable, this home being only about 25 feet from the yard in which the work was done. Both the husband and wife were injured in their health and the wife was made sick and caused to take to her bed and their efforts to rent rooms in their property were seriously impaired or completely frustrated.

"Now the rule is well established that filling the air around a dwelling with noxious or offensive vapors or odors with accompanying noises to such a degree as renders persons of ordinary sensitiveness, living in the house, uncomfortable and sick, is a nuisance, an unlawful injury which will be restrained by an injunction."

Melucci v. Eagan, 1 Atl. 2d 452, New Jersey.

CONDITIONAL SALE DESCRIPTION

WHEN a Maryland dealer in refrigerators became bankrupt he had in his possession equipment sold him under conditional sale agreements for which payment had not been made and title still remained in the seller.

The trustee in bankruptcy refused to surrender these units to the seller on the ground that the description of the articles in the contracts was insufficient for identification of the equipment and maintained that, "A description which gives only the model, number and serial number of the article purported to be covered thereby but does not give the name of the maker nor the nature of the chattel, does not comply with the statute which provides for a 'writing describing the goods'."

In its decision awarding possession of these goods to the seller the court referred to a decision by a Federal Court in which the court had said,

"The recorded instrument is sufficient if the property be so described or identified that a subsequent purchaser or encumbrancer would have the means of ascertaining with accuracy what and where it was and the language used be such that if he should examine the instrument itself he would obtain thereby actual notice of all the rights which were intended to be created or conferred by it."

To this the court in this recent decision added in conclusion, "Presumably both the trustee and the seller are familiar with the articles dealt with and where they are able to identify the particular articles, that should be sufficient."

In re Nickolas, 117 F.S. 590.

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THE COMMERCIAL REFRIGERATION and AIR CONDITIONING

APPLICATIONS MANUAL

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. All problems should be clearly and completely stated and addressed to: COMMERCIAL REFRIGERATION AND AIR CONDITIONING, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.

Standardized Load Calculations Can Be Used In Figuring Church Air Conditioning Jobs

by Arthur H. Farr

It is an accepted fact that one of the largest untapped markets for the air conditioning contractor exists in the churches of his city. There has been a recent publicity boom about the air conditioned church which has helped to make churches aware of the benefits of air conditioning. Some of these advantages are:

1. Increased year around attendance as new members may be attracted during summer months.
2. Increased revenue from collections.
3. Reduction of cleaning and redecorating costs.
4. Elimination of street noises and/or noisy fan systems for ventilation.

Most churches have a building committee staffed by members of the church — many of whom are successful business men who have already air conditioned their business establishments. All of these things indicate a ready market for air conditioning.

The basic calculations required for designing a church air conditioning system where the sensible heat to total heat ratio is relatively low has largely been standardized. This is due, in part, to data gathered from a large number of installations in operation in churches, theaters, auditoriums and assembly halls where the total heat gain follows a definite ratio to the number of occupants.

The selection of a satisfactory inside dry bulb temperature and relative humidity differs somewhat from buildings with other types of use and occupancy. For example, a relative humidity of 45% might easily be maintained in an office, but the cost would be extremely high to maintain this low relative humidity in a fully occupied church due to the low sensible heat ratio.

Thus, it is desirable to select an inside dry bulb temperature in combination with an economically practical relative humidity that will result in an effective temperature within the summer comfort zone. Since the occupancy in a church auditorium is seldom for longer than 1½ to 2 hours, relative humidities up to a maximum of 55% are per-

missible. Above this limit odors are accentuated and would result in unsatisfactory operating conditions.

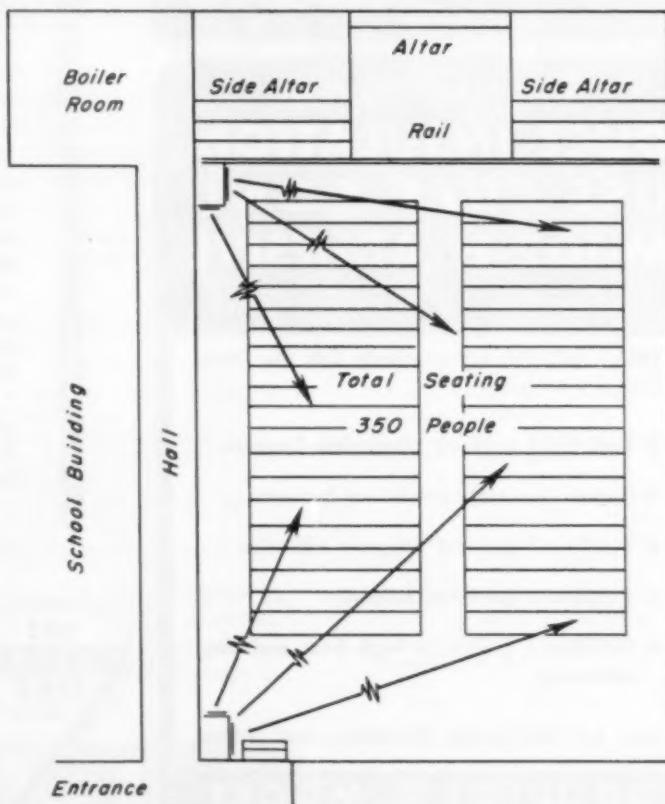
A regular heat gain estimate should be made of the church spaces to be cooled, but Table 1 gives a quick estimate form for preliminary estimates on a church auditorium.

Table 1. Seats Per Ton At Various Design Conditions:

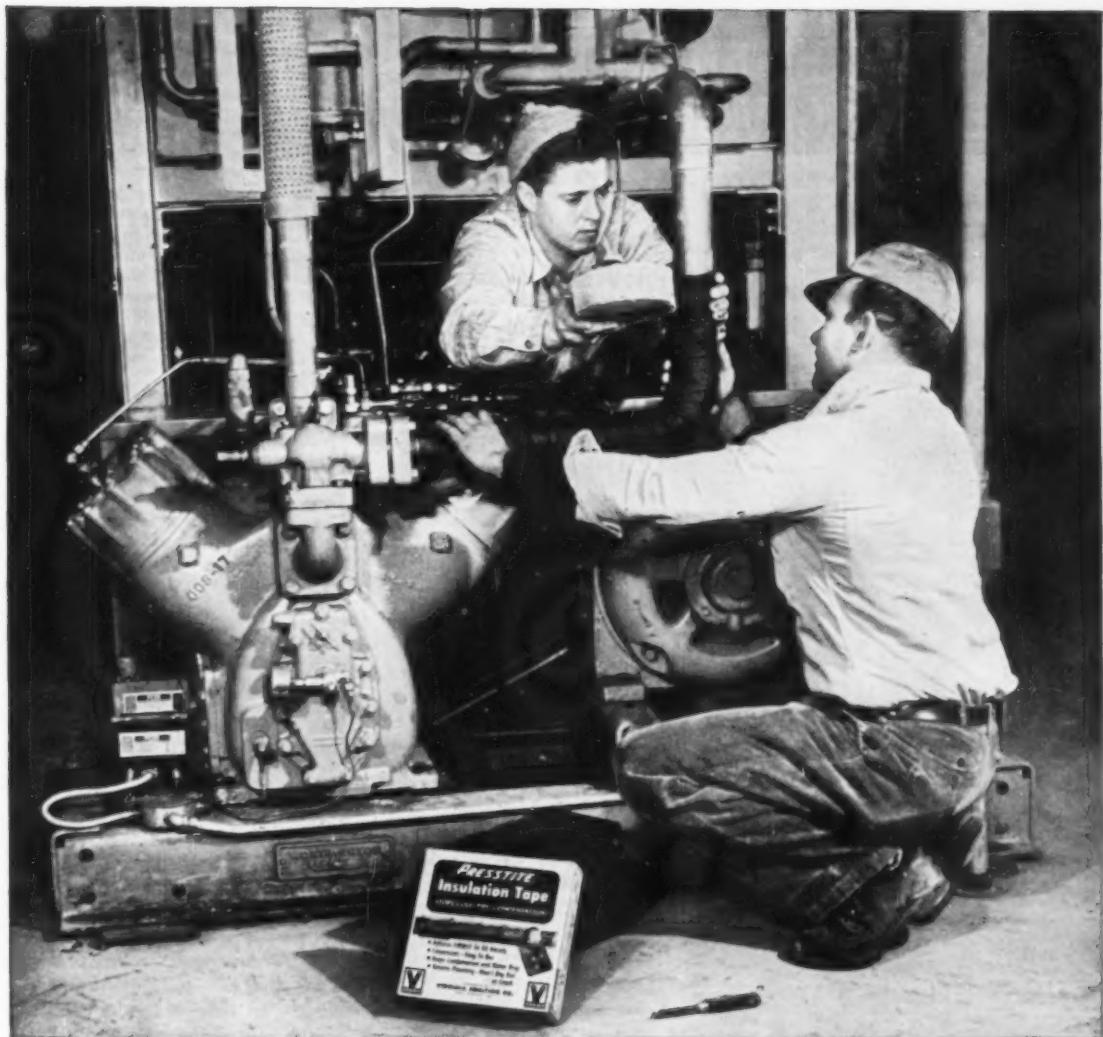
Outside Design	90° Dry Bulb	95° Dry Bulb	100° Dry Bulb
65°	25°	24°	23°
70°	24°	22°	22°
73°	22°	21°	21°
75°	21°	20°	20°
78°	20°	19°	18°

Let us consider a relatively small neighborhood church with a maximum seating capacity of 350 people located in Cleveland, where the outside design conditions are 95° dry bulb and 75° wet bulb. From Table 1 we select the factor of 20 seats per ton, and by dividing 350 seats by 20 we indicate that 17½ tons of capacity is required.

This figure may be used to qualify the prospect by using your own rough figure for the installed cost



CAREFUL COMPUTATIONS proved that two 8-ton packaged units would be ample to air condition this church with a seating capacity of 350 people.



Presstite Tape stops the drip, once and for all

Cold pipe condensation can make a mess of the finest installation—can ruin walls, woodwork and merchandise—unless you take the precaution to use Presstite Insulation Tape. This solves the dripping problem for good.

Presstite is simplicity itself to use. Just wrap the tape spirally on the surface you want insulated—suction lines, cold water lines, valves or fittings. Presstite Tape can be used on hot pipes up to 165°F, and is ideal for those lines used

alternately for cooling and heating. No matter how thin a coating you put on, the joints are self-sealing, and you can build up the wrappings to any thickness you want. No cements or other coatings are ever needed.

Presstite Tape contains 40% virgin cork and will adhere to any metallic surface. It never dries out, hardens or becomes brittle. Each convenient package contains a 30 ft. roll of tape 2 in. wide and $\frac{1}{8}$ in. thick.

Get Presstite Insulation Tape from your favorite wholesaler, or write **Refrigeration Division, VIRGINIA SMELTING Co., Dept. 64, West Norfolk, Va.**

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- A. Needle pierces line and seals.
- B. Taper of needle plus gasket forms second seal.
- C. Knurled brass cap plus gasket is positive third seal.

LINE-TAP VALVE

Small, compact hermetic valve that is easily installed on the lines of systems, piercing the tube without discharging refrigerant, to provide a port for charging, discharging or testing. Conforms to tube, eliminating top heavy assembly — will not loosen or develop leaks due to vibration — will not bend or crimp tubing. Use with Watsco Control Valve, Part No. CV-1. Made in 5 sizes. Part No. LT-3 for 3/16" tubing. Part No. LT-4 for 1/4" tubing. Part No. LT-5 for 5/16" tubing. Part No. LT-6 for 3/8" tubing. Part No. LT-8 for 1/2" tubing.

LINE-PORT VALVE with T-S CONNECTION

U. S. Pat. Pend.

Provides a port for sealed units when it is desirable to cut the line that is to be tapped. No top heavy assembly to vibrate loose. The addition of the T-S Connection permits a huge variety of installations whereby one may be flared, the other soldered, or both ends either flared or soldered. Use with Watsco Control Valve, Part No. CV-1.

Part No. LP-4 for 3/16" sweat; 1/4" sweat; 1/4" flare. Part No. LP-6 for 1/4" sweat; 5/16" sweat; 3/8" sweat; 3/8" flare.

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Screws on to Charg-A-Can refrigerant disposable containers. Valve stem needle pierces the can seal and operates as a regular valve, allowing removal of refrigerant. Easily shut off and sealed. No large protruding parts when in closed position. Use with Watsco Control Valve, Part No. CV-1. Part No. CT-1.

CONTROL VALVE

Designed expressly for use with LINE-TAP VALVE, LINE-PORT VALVE and CAN-TAP VALVE. Plated tool key with a screw arrangement that easily opens or closes these valves. Quick coupled — installed without wrenches. To operate: screw Control Valve on to any of the three valves and turn to open; then close, unscrew Control Valve and remove. Use over and over again, one tool for hundreds of jobs. Part No. CV-1.

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40-08 22-1/2 STREET, LONG ISLAND CITY, N.Y.

per ton of air conditioning. For example, if your experience indicated that you sold packaged air conditioning systems for an average of \$350 per ton, you could qualify the prospect on the basis of a job costing in the neighborhood of \$6,125.

In the case of the job at hand, the church was interested and a detailed survey and heat gain was prepared. The orientation of the church auditorium was such that the calculated load was only 16 tons and the job was sold on the basis of two 8-ton package units installed in the auditorium as indicated on the adjacent sketch.

In addition to providing cooling on this job, the units were equipped with steam heating coils and tied into the existing steam plant. The church had not been satisfied with the old heating system and were eager to correct this situation with the installation of the packaged units.

The heating coils in the units made it possible to remove all of the old radiation which was exposed on the walls of the auditorium along with the exposed steam lines — thus improving the appearance of the church as well as providing all of the other benefits of air conditioning as listed above.

CEILING PANEL HEATING TO BE TESTED BY ASHAE

Building designers, architects, engineers and contractors will benefit from research being conducted by the American Society of Heating and Air Conditioning Engineers to determine the effect of cold walls on the efficiency of ceiling panel heating.

Program will include tests with cold wall temperatures ranging from 30 F to 60 F while attempting to maintain 70 F room temperature. Results of the study should be of value in determining how much ceiling panel heating is needed and where it should be placed.

G.E. BOOSTS PRICES ON SMALL MOTORS

A price increase of approximately 5% was recently made effective on G-E's line of fractional horsepower motors. Caused by increased wages, material and transportation costs, the price increase applies to a-c, d-c, and series motors, motor parts, accessories and generators.

TRION SELLS RIGHTS TO DUST TESTER

All rights to its Dill Dust-Spot Tester, a highly accurate instrument for measuring efficiency of all types of air filters, have been sold by Trion, Inc. to Research Appliance Co.

The instrument was originally developed in the National Bureau of Standards and was later perfected and a portable model produced by Trion. The company, however, felt that such an instrument should be manufactured and sold by a firm not associated with the air cleaning field and arranged for its sale to Research Appliance Co., a manufacturer of research and testing equipment.

SERVEL TESTS SMALLER, LIGHTER 3-TON UNIT

Servel, Inc. has announced that 100 experimental models of a revolutionary new 3-ton single-coil "all-year" gas air conditioner are being placed with gas utility companies over the nation for extensive field testing.

The new unit, presently called the XFC-96-C, is a product of five years' research, development and in-plant testing. Direct fired, it provides both heating and cooling for an entire home through a single gas-operated heat exchanger. It is approximately one-half the size and weight of Servel's present 3-ton unit. Unlike earlier 3-ton air conditioners, it requires no field assembly.

The 100 units will be placed in areas representing all climatic conditions. The gas utility firms will maintain detailed records on installation and operating costs, performance, and service requirements.

If the field tests confirm Servel's expectations, the new unit will be in production by mid-1956.

HONEYWELL AWARDS NINE FELLOWSHIPS

Nine post-graduate fellowships will be awarded by Minneapolis-Honeywell Regulator Co. for the 1955-56 school years. Now in its 10th year, the program provides tuition and living allowance awards to outstanding graduate students who need financial assistance to continue their studies. Fellowship awards are made in the fields of engineering, physics, and chemical technology.

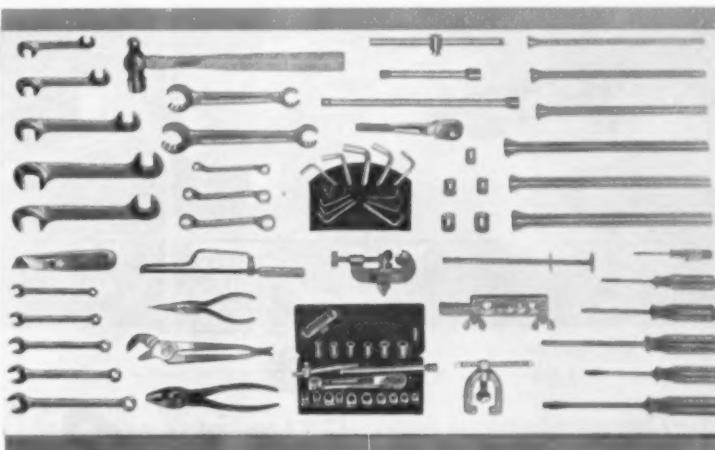
Corp., of Long Island City, N.Y., maker of the recently developed drip-free unit.

New York City's first Amic-conditioned apartment building is the deluxe 18-story structure being readied for occupancy at 35 Park Avenue by Anthony Campagna & Sons, owners and builders. The flush-mounted 1-hp Amic units are designed to be compatible with any architectural requirements, silent, and completely weatherproof, the manufacturer claims.

One tool or a chest—
if it's BONNEY,
it's best!

From a flare nut wrench . . . to a 76 piece set, leading refrigeration mechanics look to BONNEY for the right tool for every job. BONNEY makes a complete line of special refrigeration tools, particularly *designed to meet the needs of the refrigeration mechanic and service man*.

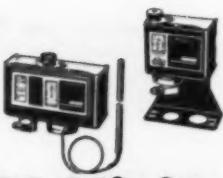
Good tools—and the right tools—are half the job. So make your job easier. Insist on BONNEY Tools.



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ALLENTOWN • PENNSYLVANIA



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Ranco Invites ARI Visitors



... to discuss your control applications with us, and we would like to tell you more about our products. So come to visit us at our exhibit—Booth 334—at the 9th Exposition of the Air-Conditioning and Refrigeration Industry Show in Atlantic City at Convention Hall, November 28 through December 1. We look forward to seeing you there.



Columbus, Ohio

Delaware, Ohio



Plain City, Ohio



Motherwell, Lanarkshire,
Scotland



Ranco Inc.

COLUMBUS 1, OHIO

World's Largest Manufacturer of Refrigeration Controls

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NOVEMBER, 1955 • COMMERCIAL REFRIGERATION

THE SERVICE MAN'S DEPARTMENT

HERE'S HOW!

How to Win Friends and Fix Flat Tires

Most of the time, this department deals directly with the mechanical problems involved in keeping air conditioning and refrigeration equipment in proper operating condition. That is its main purpose.

DO IT THIS WAY

ADDING a gauge port to a sealed unit can easily be accomplished in the following manner:

Drill a small hole in the suction line at a readily accessible spot, taking care to keep drill chips out of the line. Insert about 1" of a 3" length of small diameter capillary tube into the hole and silver solder in place. Then flare one end of a short length (3" or so) of $\frac{1}{4}$ " tube, add flare nut, and solder opposite end to free end of capillary tube.

Use $\frac{1}{4}$ " flare plug to close opening when unit has been charged. Entire device can be bent against suction line and taped out of the way.

W. Chaplin
Mattoon, Ill.

Occasionally, however, something comes along that's different, and worth passing along. Here's an example of what we mean, volunteered by John E. Gilmore, of Central Air Conditioning & Heating, Nashville, Tenn.

"Many has been the time I've passed a fellow-traveler standing in bewilderment beside his automobile, dejected at the sight of a flat tire while I ride by powerless to help," Gilmore writes.

"Here is an outfit I've rigged up which helps everyone, and there's no selfish motive in it.

"I have on my service truck a 3-ft. length of air hose with a quick coupler on one end and an air valve on the other. Here's how it's used:

"When you see someone in need of help, merely get out a refrigerant cylinder, attach to cylinder and valve stem, fill tire to $\frac{3}{4}$ capacity, allowing for expansion due to heat, and you've done your good deed for that day.

I DO IT THIS WAY

CHARGING lines and manifold gauges can be kept free of dirt and moisture by simply screwing all three lines to a common flare tee immediately after each service "disconnect". Always be sure to loosen fitting before re-calibrating gauges as they sometimes retain a slight pressure.

Wilson J. Malcik
Temple, Texas

"Now, let's see what chain reaction has taken place. You have befriended your fellow-man, and he



WANT TO EARN \$5?

Then dream up some good idea for saving yourself time, money, or aggravation on a service call, and tell us all about it. Just jot it down on the nearest scratch pad, together with a sketch if you think that would help, and send it to Here's How Editor, Commercial Refrigeration and Air Conditioning. If the Editor agrees that your idea is worthwhile, he'll make your dream come true by publishing it in the magazine and promptly sending you a check for \$5. Why not start reaching for that pencil right now?

or she is grateful. They can now get to a service station. You feel pretty good yourself.

"Maybe you haven't made a customer, but you've done a good job of advertising your company. Your boss shouldn't object to the small amount of refrigerant used, for you purge your cylinders of non-condensables frequently. Why not purge into a flat tire? There's no time element; it takes less than a minute."

Gilmore suggests that this might be something that refrigerant manufacturers might want to take up,

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assures perfect, even bends
... right-angle, any angle.
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See your supply
house—or write
for free folder
today.



HOLSCLOW BROS., INC.

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166

supplying (perhaps at cost) such a hose adapter device to servicemen on a national scale. He feels it would be a good will promoter for the whole industry. What do you think?

I DO IT **THIS WAY**

TO make a zippo-type cigarette lighter double as a halide leak detector simply take two strands of copper wire, such as are usually found in ironing cord, twist them together to make one piece, and pass it through the holes in both sides of the lighter's wind screen. Bring ends to top, twist together, and snip off, allowing about $\frac{1}{2}$ " of wire to protrude above top of screen.

Lighter flame will turn wire bright red almost immediately. Hold wind screen close to area to be tested and even a fine leak will cause the flame to change color. This procedure applies to Freon leaks only.

Usual flame precautions should be taken with methyl chloride. Copper wire can be pushed toward rear of lighter case until needed again.

Joseph Biego
Ellwood City, Pa.

Draw a Good Vacuum Instead of Purging

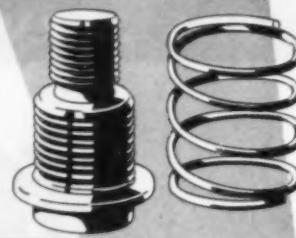
Admittedly it is easier and much quicker to simply purge out the lines and evaporator of a refrigeration system than it is to pump a good vacuum on the system, but there are many reasons why the latter procedure is more advisable.

For example, a good vacuum, held for about half an hour, is a fine leak test on the lines and low side, being more complete and effective than a hurried test with a halide torch. The vacuum tests all the joints, whereas the torch may skip some unlikely places, such as splits or pinholes in the tubing.

Another advantage of pumping a good vacuum that is often overlooked is the fact that a good vacuum removes moisture from the system. Purging may blow out part of the moisture, but will not blow out all.

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REFRIGERATION WHOLESALER**

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Above we show just one of several hundred. This is a Bellows Seal designed for Coldspot units. Utmost care was taken to select performance materials of seal ring, bellows and spring, and then it was precision made to give a lapped, airtight fit.

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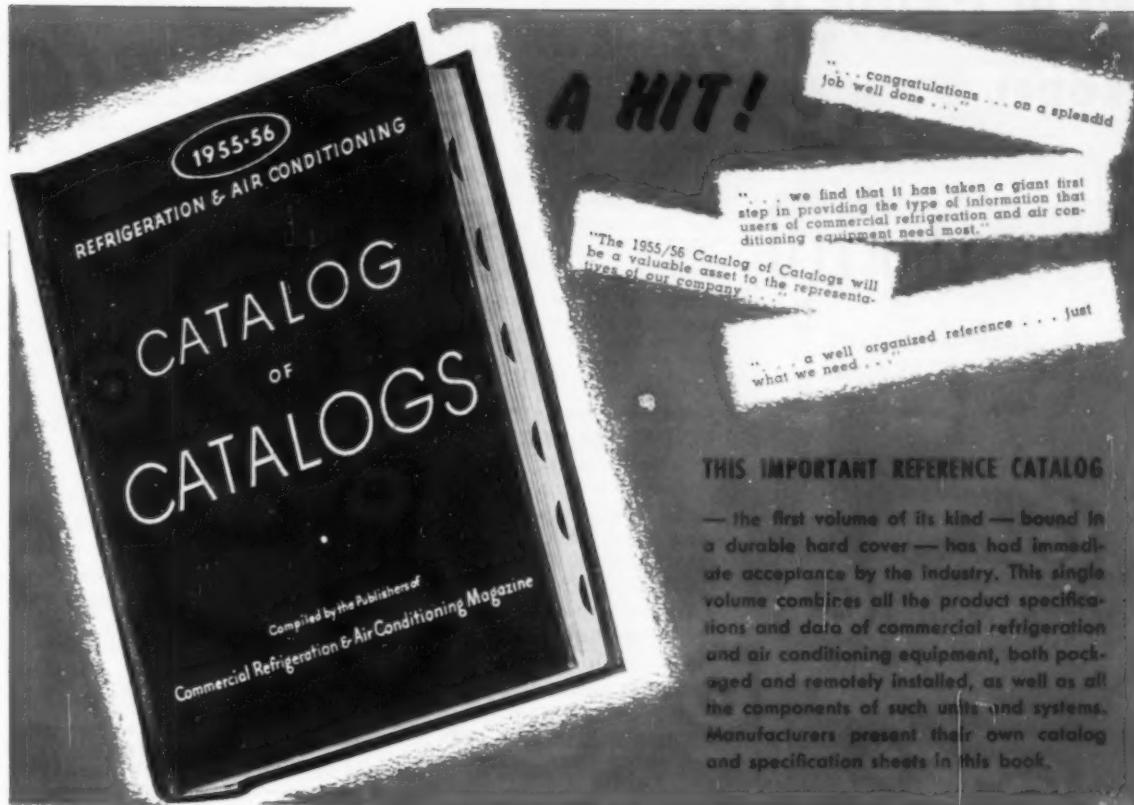
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3 to 15 HP
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- Air Cooled Condensers—
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AIR CONDITIONING EQUIPMENT SECTION

Bound-in manufacturers' catalogs or specifications sheets, with working technical data and source listings. The feature of this section is the comparative specification listings of 1955 lines of room, store, and residential air conditioners. These are presented in the same manner as that of previous years, which has been so successful, and used by so many thousands of men in this field.

COMPONENT SECTION

General engineering, contracting, and architectural working data, including comprehensive listings of components and accessories. Information to aid in the application of equipment in refrigerated or air conditioned areas. Bound-in manufacturers' catalogs and specifications sheets.

CASE AND FIXTURE SECTION

Refrigerated case manufacturers' catalogs and specifications sheets answering problems in the application of packaged and remotely installed cases and coolers for merchandising or storage of all types of food and beverage products. Blueprints of practical store plans for typical food market layouts. Listings of manufacturers of this equipment.

"WHERE TO BUY LOCALLY" — Wholesaler Section

Listing by geographical area, the independent local outlets for refrigeration and air conditioning equipment and supplies. Printed on yellow stock and carefully collated to aid in establishing local purchasing sources.

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CLEVELAND 13, OHIO

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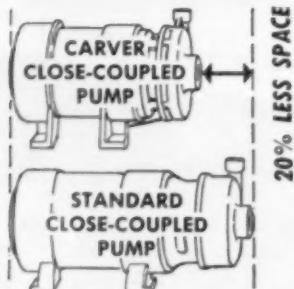
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NEW CARVER

MODEL B PUMPS

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CLOSE COUPLED



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When we say close-coupled we really mean close-coupled. The illustrations dramatically tell the story.

Mounted on the sturdy, short shafts of close-coupled motors these highly efficient Carver Model B Pumps are stronger, quieter in operation, more attractive . . . better in every way for every job.

And extremely important, of course, is the extraordinary compactness which makes them ideal where space is limited.

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CARVER also manufactures Frame-Type Pumps, Split-Case Pumps, Submersible Sump Pumps and Self-Priming Pumps.

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*The quality name
in pumps*

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File

LARKIN HONORED AS "ATLANTA BOOSTER"

Larkin Coils, Inc., was saluted by Radio Station WAGA on a recent "Atlanta Boosters" program. The program salutes outstanding Atlanta business firms for their contributions to the well-being of the community. The salute featured Larkin's invention of the cross-fin coil in 1928 and the development of the company since that time.

SEEK "YARDSTICK" FOR MEASURING NOISE

Noise from air conditioning equipment and installations will be the subject of a new study by the research laboratory of American Society of Heating and Air Conditioning Engineers.

Immediate objective of this project is the development of sound measurement which can be adopted as a standard so that noise control can be organized on an engineering basis. The study will also seek to determine the attenuation of sound in ducts.

DISTRICT OFFICE MOVED

Eastern district office of Superior Valve & Fittings Co. has been moved to a new location at 405 S. Washington Ave., Bergenfield, N.J. The office formerly was at 60 E. 42nd St., New York City.

WORTHINGTON PLANS MANPOWER INCREASE

A major program for increasing Worthington Corp.'s air conditioning and refrigeration field sales and engineering force as well as its export air conditioning operation has recently been instituted.

Designed to service the company's rapidly growing distribution organization, the manpower expansion program will tie-in with substantially increased merchandising, sales training, application engineering, and service personnel at the home office, which will move to the company's new Amper Works in East Orange, N.J.

BUY FROM YOUR
REFRIGERATION WHOLESALER

best on the job... United Copper Tubing!

The new V-type sealed ends on UDD Copper Tubing are just one of many superior factors which have made this product a leading industrial choice in production operations all across the country. UDD Copper Tubing comes packed in drums with sizes plainly marked for easy use.



UDD V-Type Sealed End
Assuring
Moisture Free,
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DETECT LEAKS * SOLDER * HEAT



PREST-O-LITE Trade-Mark REFRIGERATION AND AIR CONDITIONING OUTFIT

This air-acetylene outfit easily handles all your soldering, heating, and leak detecting work. No liquid fuel to spill. No pumping, priming, or wasted time. The three open flame stems and halide gas leak detector unit are instantly interchangeable on a common handle. One handy kit with a flame for every job. See your LINDE jobber for a demonstration. Or write LINDE AIR PRODUCTS COMPANY, a Division of Union Carbide and Carbon Corporation, 30 East 42nd Street, New York 17, N. Y. In Canada: Union Carbide Canada Limited, Toronto.



Fully adjustable gas pressure regulator insures perfect flame control. Torch handle has shutoff valve and built-in pilot flame control for convenience and economy.

Get it from your LINDE jobber



The terms "Prest-O-Lite" and "Linde" are trademarks of Union Carbide and Carbon Corporation.

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& AIR CONDITIONING • NOVEMBER, 1955

OPPORTUNITIES (Classified Advertising)

Rates: for "Positions Wanted," \$6.50 minimum, limit 25 words. For all other classifications, \$8.00 minimum for 25 words or under, each additional word 20¢. Boldface type or all capitals, \$10.00 minimum for 25 words or under, each additional word 25¢. All classified advertising payable in advance.

DISTRIBUTORS WANTED

EXCLUSIVE DISTRIBUTORS WANTED for complete line of quality beverage coolers. Sizes range from 30" to 10' in length. New blower arrangement makes available much faster cooling than ever before possible in a dry beverage cooler. Ice Cube Maker and stainless steel models are proving extremely successful, especially in hot and humid climates in this and many foreign countries. We are interested only in distributors who can sell a quality product and who are looking for a permanent connection for their beverage cooler supply. Address inquiries to: True Manufacturing Co., Inc., 9500 True Drive, St. Louis 14, Missouri, or see us in Booth No. 116 in the All Industry Show, Atlantic City, from November 28 to December 1, 1955.

EQUIPMENT AVAILABLE

NAMEPLATES—specially manufactured for air conditioning and refrigeration requirements. Use these low-cost 2 1/2" x 3/4", METAL nameplates for labeling and identifying your installations. Over 100 standard refrigeration and air conditioning wordings available for immediate shipment. No minimum order required. FREE samples, quotations. Catalog available covering metal or engraved bakelite nameplates worded as you specify. Numbered valve tag information included. SETON NAMEPLATE CO., Dept. CR, 394 Central Ave., New Haven 15, Conn.

TRANE EXPANDS PLANS FOR COIL PRODUCTION

Opening of a new plant to increase production of coils was recently announced by Trane Co. With 55,000 sq. ft. of space, this is the second new manufacturing area added by the company this year.

The added space is expected to permit an expansion of as much as 30% in coil production, especially in connection with development of the "Delta-Flo" fin, a specially-formed aluminum type.

The most significant aspect of the new plant is that production line operation is being applied to a made-to-order coil manufacturing operation involving a great variety of sizes and shapes.

Use
FINE RAPID
Refillable
DEHYDRATORS

AND SAVE \$800 A YEAR!

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habit—Get the "RAPID
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If you use only 25 dehydrators per month, you can save \$800 a year by Refilling instead of using the cheapest "throwaways".



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What to look for

... when you select
automatic expansion valves

(1) Look for *fast*, accurate, easy field adjustment — immediate setting at proper operating pressure. (2) Look for easy installation — compact size that fits easily into hard-to-get-at places. (3) Look for moisture-proof caps to prevent head freeze-ups. (4) Demand a large area strainer that can be removed without breaking the inlet connection. In other words, insist on automatic expansion valves designed to make your job easier!

A-P Models 204C and 304C are the standard of the refrigeration industry for domestic and small commercial appliances because they *do all these jobs positively, dependably and economically.*

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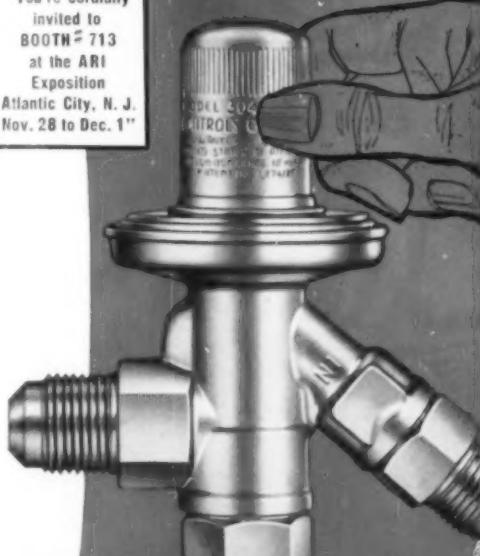
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MODEL 204C (standard) — Adjustment ranges: 15" vac. to 45 psig. Inlet: $1/4"$ SAE male flare. Capacity: $1/2$ -ton, F12. Outlet: $1/4"$ female N.P.T. $1/8" \times 1/8"$ combination SAE male flare, straight $1/8"$ SAE male flare. Model 204CH (bleed type) with slotted orifice eliminates heavy starting loads. Allows use of low starting-torque motors.

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MODEL 304C (standard) — Two models, two adjustment ranges: 10" vac. to 45 psig. (Model 304CF) and 10" vac. to 75 psig. (Model 304CFF). Capacity: 1-ton F12 and F22. Inlet: $3/8" \times 1/8"$ combination SAE male flare. Outlet: $1/8" \times 1/8"$ combination SAE male flare. Also available with any size bleed slot.

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